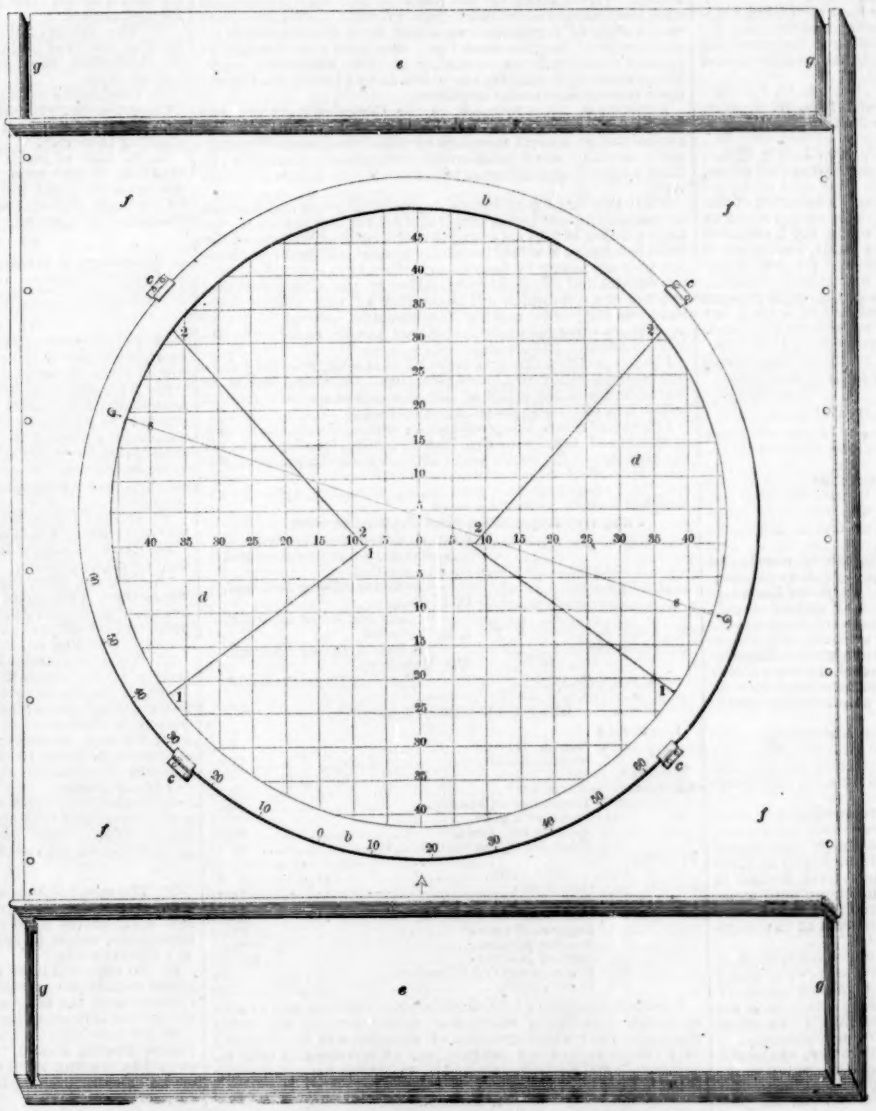
RAILROAD GAZETTE

SATURDAY, SEPTEMBER 7, 1872.

Areameter.

This instrument, represented by our engraving, is intended for calculating cross sections of embankments and cuts. It consists of a board, *e e*, with a groove, *g g*, in each side. To this board is attached a piece of ordinary cross-section paper, *d d*. On this the slopes of a cut, 2 2, and embankment, 1 1, are laid off of any required size and inclination. *f f* is a brass frame which slides in the grooves, *g g*. To this frame is attached a revolving rim of the same metal, graduated in degrees to correspond with the surface slopes, the line of which is represented by a thread, *s s*, stretched across its center. In using it the frame, *f f*, is moved up or down in the slides until the thread, *s s*, cuts the elevation of slope or embankment at center. The rim, *p p*, is then turned until the thread corresponds to the angle of the surface of the slope. The horizontal width is then seen at the intersection of the thread with the side-slope lines of the diagram.

This instrument is the invention of Mr. James R. Maxwell, who was formerly a division engineer on the Union Pacific Railroad, but who is now engaged with Mr. John L. Thorndike on the Puno & Aroya Railroad in Chili.



AREAMETER; DESIGNED BY JAMES R. MAXWELL, C. E.

Navigation on the Mississippi.

The St. Louis *Republican* gives the following official important figures in relation to the steam tonnage on the Mississippi River and its tributaries:

The registered tonnage, June 30, 1872, in Kentucky is: Vessels, 54; tonnage, 15,555.70, all of which are river steamers. The number of steam vessels belonging to Missouri is 167, with a tonnage capacity of 72,465.67. Iowa has 34 steamboats, with a tonnage of 3,147.46. Minnesota has 62 steamboats, with a capacity of 10,788.97. Wisconsin has 44 vessels, with a capacity of 14,788.97. Indiana has 49 vessels, with a registered tonnage of 8,222.66. West Virginia has 79 vessels, with a capacity of 10,667.66 tons. Nebraska has four vessels, with a capacity of 717.46 tons. These, as will be seen, are States exclusively represented on rivers—the Mississippi and its tributaries. If we take Ohio, with 203 vessels, with a registered tonnage of 52,069.04, and Illinois, with her 155 vessels, with a capacity of 19,291.69 tons, and Pennsylvania, with her river tonnage—in fact, if we combine the figures which we have at hand, and which we have no doubt will be officially promulgated in due time, we shall find that the total number of steam vessels registered to navigate Western rivers exclusively is 1,017, with a capacity of 272,798.04 tons. This interest, it is seen, is not one of minor importance. It occupies a great place in the commercial economy of the West, and a large place in the mercantile well-being of the whole nation. We have no means of ascertaining the actual value of this immense fleet of more than a thousand steamboats, but placing the estimate at a very low average value—say $10,000 each—we have the enormous sum of $10,170,000 invested in steamboats alone, to say nothing of barges and other vessels.

Another fact is brought out by these statistics of some value, that is that the steam tonnage on the western rivers only wants a fraction of being one-fourth of the whole registered steam tonnage belonging to the United States, including the Atlantic and Gulf coast, the Pacific coast and the northern lakes. Our river tonnage greatly exceeds that of the northern lakes, which has registered only 682 vessels, with a capacity of 149,467.59 tons. It must be borne in mind, also, that we are only dealing with the figures in relation to vessels propelled by steam. As the lakes are not adapted to navigation with barges, our tonnage of all kinds, including model barges, canal boats and scows, must be more than four times as great as that afloat on the lakes.* The entire steam tonnage on the Atlantic and Gulf coasts consists of 1,672 vessels, with a capacity of 684,518.65 tons. On the Pacific coast there are only 196 vessels, with a capacity of 6,856.06 tons.

Thus it will be seen that the total registered steam tonnage of the United States is only 1,087,637.14 tons, nearly one-fourth of which is owned, controlled and employed on the Mississippi and its affluents.

—Pittsburgh papers report that the Pittsburgh Locomotive Works recently had an offer of an order to manufacture fifty locomotives to go to Europe, which, the works being taxed to their full capacity, was declined. The works are building 45 engines: 15 for the Pittsburgh, Washington & Baltimore Railroad, 12 for the Allegheny Valley, 15 for the Pan Handle, and 3 for the Texas & Pacific. Locomotive shops generally are full of work, and it is difficult to get orders filled without giving pretty long time for the builders.

* This is an extraordinary statement; for no account is taken of the sailing vessels of the lakes, which have many times the tonnage of the steam vessels.—Editor Railroad Gazette.

WESTERN AND SOUTHERN RAILWAY ASSOCIATION.

Official Report of the Second Quarterly Meeting, held in Cleveland, July 9, 1872.

Pursuant to adjournment, the second quarterly meeting of the Western & Southern Railway Association was held at the Kennard House, Cleveland, Ohio, on the 9th of July, 1872. The meeting was called to order at 12 m. by the President, Mr. Thomas Allen. The following is a

LIST OF MEMBERS PRESENT.

Hon. Thomas Allen, President Iron Mountain Railroad Co.
Col. A. Anderson, Vice-President Toledo, Wabash & Western Railroad Co.
Albert Fink, Vice President Louisville & Nashville Railroad Co.
Gen. J. H. Hammond, Vice-President Macon & Brunswick Railroad Co.
J. E. Gimperling, General Superintendent Louisville, Cincinnati & Lexington Railroad.
O. S. Pease, General Superintendent Indianapolis & St. Louis Railroad.
E. S. Flint, General Superintendent Cleveland, Columbus, Cincinnati & Indianapolis Railroad.
Charles Paine, General Superintendent Lake Shore & Michigan Southern Railroad.
John Doherty, General Superintendent Hocking Valley Railroad.
G. I. Foreacre, General Superintendent Western Railroad (of Alabama).
A. A. Talmage, General Superintendent Pacific Railroad (of Missouri).
Horace Scott, General Superintendent Jeffersonville, Madison & Indianapolis Railroad.
Maj. L. J. Fleming, General Superintendent Mobile & Ohio Railroad.
A. W. Soper, General Superintendent Iron Mountain Railroad.
J. C. McMullin, General Superintendent Chicago & Alton Railroad.
Capt. E. G. Barney, General Superintendent Selma, Rome & Dalton Railroad.
John E. Simpson, General Superintendent Vandalia Line.
L. Burnett, General Superintendent Sioux City & Pacific Railroad.

The Secretary, Mr. J. H. Sheldon, being absent, Major John E. Simpson was elected to act as Secretary, *pro tem.*

On motion, the reading of the minutes of the previous session was dispensed with, they having been printed and distributed to the members of the Association.

The first business in order was receiving reports.

COMMISSIONS ON TICKET SALES.

Col. A. Anderson, Chairman of the committee appointed at the previous session to carry out the plan for abolishing the practice of paying commissions on the sales of tickets, submitted the following report:

To the Western and Southern Railway Association:

Gentlemen: Your Committee respectfully report that they have taken no action in the case. To make any plan effective, it seems indispensable that it shall be inaugurated by the Eastern trunk lines, and the Western roads join in carrying it out. It is necessary, however, that all the roads of the United States and Canada shall unite in the movement. At present this seems impracticable.

The Committee suggest that a delegate be appointed by the President of the Association to confer with the managers of the principal Eastern lines, and endeavor to induce them to adopt some system, commencing, say, on the 1st of January, 1873.

A. Anderson,
A. W. Soper,
A. A. Talmage.

The report was adopted, and, on motion of Mr. L. J. Fleming, the President was requested to address a circular to the managers of the leading trunk lines, embodying the sentiment and recommendations of the report. The President named ———— as the delegate to confer with the Eastern railroad managers, as suggested by the Committee.

ABOLISHING FREE PASSES.

The Committee on "the best means of bringing about the total abolishment of the free-pass system," through Major Simpson, the Chairman, made the following report:

Hon. Thomas Allen, President Western and Southern Railway Association:

Sir: Your Committee, on "the best means of bringing about the total abolishment of the free-pass system," beg leave to report, that we can see no way to abolish the free-pass system except by unanimous action of all the roads in the United States.

John E. Simpson.

On motion of Horace Scott, action on the report was indefinitely postponed.

RELATIONS OF RAILROADS TO TELEGRAPH COMPANIES.

Capt. E. G. Barney, Chairman of the Committee upon "the relations of railways to telegraph companies, made the following report from that Committee:

Western and Southern Railway Association:

Gentlemen: Your Committee "on the relations of railways to telegraph companies, and the rules of precedence which should govern their business," beg leave to report, that existing contracts between railway and telegraph companies are too various to be stated in a form fitted to this report.

In most cases known to your Committee, however, the practice of telegraph companies has been to ignore the rights and necessities of railways, giving preference to commercial and other paying messages. So long as railways were worked as isolated lines, the telegraph was of less importance, and the wires being less occupied by commercial business, very little injury to railway interests was felt; but an increase of business, in consequence of the establishment of through freight and passenger lines, has at the same time greatly increased the demand for the transmission of commercial messages and the necessity for the use of the wires by railway managers.

The increase in commercial paying messages being due, in great measure, to the efforts of railway managers to meet the demand of the public, it is claimed that telegraph companies should bear their proportion of the expense incurred by railways in affording new facilities to the public by extending to railway managers the same free use of their wires for through business which is by most contracts conceded to the local lines for local business. Telegraph companies complain that this will load their wires with free messages to the exclusion of commercial and other paying matter, and to the great detriment of their business.

Your Committee will not attempt to controvert this position, but will state that the growing necessities of railways demand greater facilities than are now generally obtained from telegraph companies, and hence would recommend that early measures be adopted by railway companies to organize such a system of telegraph lines, to be exclusively controlled by the several railways interested, as will not only meet their present, but future wants, both local and foreign.

To accomplish this end, your Committee recommend that a permanent committee of three be appointed to prepare a plan or plans for the organization of a National Railway Telegraph Company, if after careful investigation it shall become apparent that such a company can best meet the wants of the railway management; or such other railway telegraph companies as sectional necessities may seem to require, should the latter be deemed advisable.

Your Committee believe that such organizations can be made remunerative outside of railway service, and that the companies engaging in the enterprise will find in it a service of revenue equal to any of their investments.

E. G. Barney,
Chairman of Committee.

On motion of Mr. Fink, the report was adopted, and Messrs. Barney, Talmage and Hammond appointed a committee as recommended.

TRAIN DISPATCHING.

Mr. Talmage, Chairman of the Committee "on the best system for dispatching trains by telegraph," prepared the following report, which he submitted, with the accompanying note, to the President:

To the President Western and Southern Railway Association:

Sir: The Committee "on the adoption of the best system of dispatching trains by telegraph" beg leave to report as follows:

1st. The safest and best plan is to adopt a proper system of signals for train orders.

2d. To compel all conductors to inquire of each operator at telegraph offices if they have any orders for them.

3d. That train dispatchers, in sending orders, must call up both offices to which it is necessary to send orders, and send to both offices the same order at the same time; and in case both offices cannot be raised, the order must not be sent.

4th. That we recommend, in all cases where practicable, a time order should be given; giving one train the right to the road until a certain time, then conceding the right to the other train. In all cases allowing for variation of watches, as at regular meeting points.

5th. Two copies of a train order must, in all cases, be made —one copy for the engineer and one for the conductor. The copy for the engineer to be handed to him before the train leaves the station. A. A. TALMAGE, Chairman.

Hon. Thos. Allen, President Western and Southern Railway Association:

DEAR SIR: The Chairman of the Committee "on the best system of dispatching trains by telegraph" begs leave to report that the other members are not present at this meeting, and that he has not received from either member his views in regard to this subject, and therefore is unable to submit a report embodying the views of all the members of your Committee. I would respectfully suggest that the chair name two other members to act on this Committee, and report at the next quarterly meeting.

Very respectfully, &c., A. A. TALMAGE, Chairman.

The members present appeared greatly interested in the subject of train dispatching, and after considerable discussion Mr. Horace Scott moved that the Secretary be instructed to send circulars to all the superintendents of railroads in the United States, asking for copies of their rules and regulations governing the movement of trains by telegraph, the same to be referred to the Committee on Train Dispatching. Adopted.

On further motion of Mr. Scott, the report was laid over for consideration until next meeting.

HEATING AND LIGHTING CARS.

Mr. A. W. Soper offered the following from the Committee "on the best method of heating and lighting cars:"

To the Western and Southern Railway Association:

GENTLEMEN: The Committee "on the best method of heating and lighting cars" would beg leave to state that they are gathering information and giving attention to the numerous experiments being made, and respectfully ask an extension of time to prepare such report.

For the Committee, A. W. SOPER.

In this connection the following dispatch from W. K. Muir, General Superintendent Great Western Railway (of Canada) was read:

HAMILTON, ONT., July 9, 1872.

To J. H. Sheldon, or Secretary Railway Association Convention, Kennard House:

Please tell Messrs. Chanute and Soper, and gentlemen of the Committee, that I am sorry I cannot be present. So far as heating and lighting cars is concerned, I would say I prefer to generate heat outside of the coach, but joints, condensation and other objections leave Baker's heator in fire-proof compartment the best-known device. As to lighting: candles, though safe, are expensive, and give a miserable light; sperm oil is expensive and troublesome; refined coal oil is good, but somewhat dangerous; gas is the best, but not yet perfected. When a reservoir can be kept safe from passengers, I will prefer it; but meantime, first-class coal oil is the cheapest and best light, and can be made safe. Please say if you get this.

W. K. MUIR.

WEAR AND TEAR OF WHEELS AND AXLES.

The following report from the Committee "on the wear and tear of wheels and axles" was submitted by Captain E. G. Barney:

To the Western and Southern Railway Association:

GENTLEMEN: As one of the Committee "upon the wear and tear and durability of wheels and axles, and how many miles they can be run with safety on passenger or freight trains," I beg leave to submit the following:

The composition and mode of manufacture of wheels and axles in the United States is too variable for any rule to be established as to wear and tear, or to safety. In some European countries, under a monarchical government, all classes of railway material are subjected, during the process of manufacture and afterward, to a careful inspection by scientific experts in the pay of the government. With this system great uniformity in texture and strength of material is obtained, and then it may probably be practicable to approximate the percentage of wear and tear and the period beyond which it would become unsafe to use wheels and axles.

In this country each manufacturer is "a law unto himself," and railways become subject to injury from all the mistakes and errors of uneducated and inexperienced mechanics, the carelessness of employees, and to inordinate desire for gain, which possesses all our people.

In an experience of more than thirty years many instances have been observed where wheels have run with safety, and very little apparent wear, more than 350,000 miles, while others of the same make have given out after from 10,000 to 18,000 miles. Axles, also of standard manufacture, have broken in less than one hundred miles running, while others were apparently good after 200,000 miles. Hammered and rolled axles have exhibited the same defects and uncertainties as to texture and condition.

From these facts it seems apparent that under our system no approximate estimate can be made as to percentage of wear and tear or as to safety. The immediate duty of railway managers seems to be to hold each manufacturer strictly accountable for the character of material supplied, requiring guarantees covering all losses accruing from defective stock or manipulation.

It is also a question well worthy of investigation, whether a system of inspection, under railway management, cannot be instituted, which shall approximate in some degree to the perfection attained in a few of the countries of Europe. As our government is constituted, national inspectors would be worse than useless; but if railways, by combination, could arrange a system, the Government might be invoked to give it the authority of law.

This subject is one of vital importance and should engage the attention of all the members of this Association.

It is suggested that a permanent Committee should be organized to collect facts and devise plans to meet the wants of railways in these particulars.

E. G. BARNEY,
One of the Committee.

The report was adopted and laid over for future consideration.

UNIFORM HEIGHT OF DRAW-HEADS.

The Committee "on securing a uniform height for draw-heads" reported as follows:

HON. THOMAS ALLEN,
President Western and Southern Railway Association:

SIR: Your committee "upon the importance and feasibility of adopting a uniform height of bunter for all railroad cars hereafter to be constructed" beg leave to submit the following report:

The subject of a standard height for draw-heads was fully discussed at one of the earlier meetings of the "Master Car Builders' Association," and it was decided that 32 inches from center of draw-bar to top of rail would be the most desirable height, as being the average of existing practices north of the Ohio River. We recommend that railroads north of the Ohio River conform to 32 inches as the standard height. Upon examination of the cars belonging to the different roads south of the Ohio River, we find that they vary from 21 to 42 inches from top of rail to center of draw-head. We recommend the standard height, south of the Ohio River, be fixed at 30 inches; but as it appears difficult to make this change at once, we suggest that the lowest limit be fixed at 29 inches and the highest at 33 inches, but whenever practicable the standard of 30 inches be maintained.

HENRY FINK,
G. I. FORBACRE,
JOHN E. SIMPSON.

Which, on motion of Captain Barney, was adopted.

The following resolution was offered and passed:

Resolved, That the Secretary notify all the roads interested of the recommendation of the Association in reference to height of draw-heads, and request them to notify him as to their intention of conforming to said action or not. If not willing to adopt it, to state the objections.

RULES FOR OPERATING RAILROADS.

The Committee to report rules and regulations for operating railroads report the following, which, it will be seen, are the ones agreed to by a committee of railroad officers and the Board of Railroad Commissioners of Massachusetts, September 19, 1871:

BOSTON & PROVIDENCE RAILROAD CORPORATION,
PRESIDENT'S OFFICE, BOSTON, Jan. 3, 1872.

To the Honorable the Railroad Commissioners of Massachusetts:

GENTLEMEN—On the 19th of September last a very large representation of the managers of the railroads of Massachusetts met your board, upon the invitation of the Commissioners, to confer upon the subject of establishing such rules and regulations for operating the railroads of the Commonwealth as would tend to secure the highest degree of safety and the greatest amount of convenience and comfort to the traveling public. After a free discussion and an unreserved interchange of opinion upon the general subject, it was deemed the most convenient and expedient mode of bringing the conference to some practical and useful results, that a committee should be appointed by the railroad managers present (embracing representatives from nearly all the roads in the State), to consult with the Commissioners from time to time, and agree upon such a code of regulations as would meet the reasonable requirements of the government and insure the most practicable amount of safety in the operating of their respective roads. The undersigned, with his associates named below, were thereupon appointed as such Committee.

Pursuant to these proceedings, the Commissioners and the Committee have had several conferences together, and the Committee, at several meetings by themselves, have diligently and carefully considered every proposition submitted to them by the Commissioners, with the objects before stated in view.

While they are aware that no degree of diligence and forecast in establishing and prescribing rules for the observance of the large number of persons engaged in the railroad business of the State can insure absolute immunity against accident and disaster, they are happy to believe that they have succeeded, with the faithful and laborious co-operation of the Commissioners, in framing a code which will accomplish all that human foresight can suggest in making the immense amount of travel upon these thronged highways of our people as safe "as the lot of humanity will admit."

I have examined the final revise of this code from the printers, received with your note of yesterday's date, and find it to correspond with the action of the Committee as each several article was ultimately passed upon by them.

I therefore return the proof-sheets, with the earnest recommendation of the Committee that the code be adopted by all the railroads of the State, as it will be by the managers of the respective roads more particularly represented by the Committee; and congratulating your board, gentlemen, upon the accomplishment of so useful a work,

I am, very respectfully, your obedient servant,

JOHN H. CLIFFORD, *Chairman,*
Boston & Providence Railroad.

With
- D. W. LINCOLN, *Boston & Albany Railroad.*
- D. L. HARRIS, *Connecticut River Railroad.*
- J. B. WINSLOW, *Boston & Lowell Railroad.*
- WM. MERRITT, *Boston & Maine Railroad.*

RULES AND REGULATIONS.

I.—SIGNALS 1–14
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A perfect familiarity with the following rules, as well as with all special regulations which may accompany the time-table regulating the current operation of the road, will be expected of all employees of the company, and an ignorance of their requirements will never be received as an excuse for not obeying them.

I. SIGNALS.

a. General Signals 1–11
b. Special Signals 11–14

(*a.*) *General Signals.*

1. A single, short whistle from the engine is a signal to "apply" the brakes, and should be promptly obeyed by all whose duty it is to apply them.

Two short whistles, a signal to "let go" brakes.

Three, to "back the train."

Four, to call in flagmen.

2. The whistle must always be sounded or the bell rung eighty rods before reaching a public highway crossing. Regular trains, on time, may sound the whistle briefly at crossings, but irregular trains, and those out of time, should sound a long whistle.

2. The bell must be kept ringing until the highway is passed; and whenever a person on the track is thought to be in danger the whistle must be sounded.

3. A red lantern must be displayed by night at the rear of every passenger train, as a signal to all following trains. A red flag by day and a red lantern at night must be displayed on the rear car of every freight train, and in such a position as to be seen from the engine, and by any approaching train.

4. A red flag by day and a red lantern by night, displayed from the engine, is a signal that another engine or train is to follow.

6. A red flag by day and a red lantern by night, displayed on the track, is a signal for immediate danger, never to be disregarded, and the train must be brought to a stop as soon as possible.

7. Two flags, one red and one white, stuck by the side of the track, is the signal of danger ahead, and the train must proceed with great caution, not exceeding five miles an hour, until the danger is passed.

8. Every passenger train should be supplied with not less than two red lanterns, and every freight train with not less than four. In case of accident or unusual delay at night, one or more red lights should be sent in the direction of any approaching train, to signal it to stop.

9. Torpedoes must be used in addition to flags or lanterns, whenever, in case of accident or delay, there is any liability that the signal-flag or lantern may not be seen, by reason of fog or otherwise. Engine men, station agents, and section foremen should always be supplied with them. When a torpedo is exploded by the engine passing over it, the train must be stopped immediately.

10. Besides obeying the regular signals named above, engine-men and conductors must give heed to *any* flag by day or *any* lantern by night, when displayed on the track, *or any other signal* implying danger, and bring their train to a full stop to ascertain the reason for the signal. Anything violently waved before a locomotive must be taken to be a signal of danger.

(*b.*) *Special Signals.*

11. At drawbridges.
12. At junctions.
13. At railroad crossings.

} Established for each separate case.

14. In case of dense fogs, so that the special signals cannot be distinctly seen from the usual stopping-place, a man must be sent in advance of the train to receive directions from the signal-man. If the train has the right to pass, he must see that the signal conforms thereto before he returns to report.

II. TELEGRAPH.

Telegraph 15–18

15. All orders and messages relative to the movement of trains must be written in full (except the telegraphic abbreviations of certain prescribed questions and answers, which are perfectly understood by operators, conductors and enginemen). No such dispatch must be delivered until confirmed by repeating and answer.

16. Two copies of the order, when thus found to be correct, must be delivered to the conductor, who shall give one copy to the engineman, who must read and understand the same before starting.

17. Conductors must in no case leave a station when directed by *special order*, without having the same in writing, with the assurance of the person sending it that the conductor's understanding is correct.

18. In case of accident or detention of a train beyond the card time of such train, notice must be at once given at the nearest station, and the information telegraphed to the central or terminal station, and to those points where approaching trains may be signaled.

III. TRAIN SERVICE, ETC.

a. Precedence of Trains 19–26
b. Speed of Trains 27–29
c. Meeting and Passing 30–31
d. Rules for Operating Single Track 32–36

(*a.*) *Precedence of Trains.*

19. Passenger trains take precedence of freight trains. When a passenger and a freight train have the same time of departure on table, the passenger train will go first.

20. A regular passenger train following another passenger train of the same class, or a regular freight train following a freight train, must be kept not less than ten minutes behind that which preceded it. An accommodation may follow an express passenger train in five minutes; but if running ahead of an express train, the accommodation must keep fifteen minutes off the time of the express, unless *special orders* shall otherwise direct.

21. Freight trains must keep ten minutes out of the way of passenger trains which are to pass them.

22. Extra passenger trains must keep ten minutes out of the way of regular trains.

23. No train, other than an express train, will pass a station where there is no bridge for crossing the track, while a passenger train is discharging or receiving passengers; and no express train shall pass such station without due warning and at a speed exceeding ten miles an hour.

24. When two accommodation passenger trains approach a station at the same time, the train running in a particular direction (as the Superintendent may designate) must stop before reaching the station and wait until the other train has passed the station.

25. When a passenger train and a freight train approach a station at the same, the freight train must always stop before reaching the station and wait till the passenger train has passed the station.

26. Unless otherwise ordered, passenger trains must be run with express and baggage cars first and the passenger cars behind. When freight cars are run on a passenger train they must be placed next to the engine.

(*b.*) *Speed of Trains.*

27. The speed of the several classes of trains will be regulated by distinct and fixed orders from the Superintendent; and such orders must be strictly observed by conductors and enginemen, unless by *special orders* they are authorized to run at a different rate.

28. No train will leave a station earlier than the time named in the time table: *provided*, that when several *freight* trains are running upon the same schedule, the intervals of time between the several trains may be such as each road shall prescribe.

29. All drawbridges, and all bridges of over three hundred feet in length, should be approached carefully, and trains should be run over them at a moderate and uniform speed; and over all shorter bridges in strict accordance with the special rules of the road.

(*c.*) *Meeting and Passing.*

30. General rules for meeting and passing will be found above, under the head of "Precedence."

31. Where there is a double track, trains should be run only in the direction for which the respective tracks are usually used. Except in extraordinary cases no train should be backed upon its track; and whenever it is necessary so to back a train, or to cross to the opposite track to avoid an obstruction, a red flag by day or a red light by night, must be sent in the direction in which the train is moving, a sufficient distance in advance to secure safety to any approaching train, and such signal must be kept thus in advance of the train until it resumes its proper track and direction.

(*d.*) *Rules for Operating Single Track.*

32. A train must not leave a station expecting to meet at the next station a train having the preference of road, unless it has its full schedule time to reach the meeting point.

33. At meeting points between two trains of same class, the train not having preference of road must take the siding and be clear of main track before the leaving time of the opposite train.

34. In cases where a freight train meets a passenger train, the freight train must clear the passenger train ten minutes.

35. When expected trains are not found at the passing places designated on the schedule, trains must be run with great caution to the succeeding station until the expected train is met and passed. Trains should stop or approach with caution the switch used by passing trains to come on to the siding.

36. If any train breaks down, stops or is delayed from any cause, on the road, the first duty of the conductor, and of all persons connected with the train, is to see that efficient measures are taken to prevent other trains from running into the delayed train. *One*, and in case of danger, *two efficient men* must be sent backward or forward, or both, as the case may require, with red flags or lanterns, *at least* half a mile, to stop any approaching train. No wish to have the signal-men go on in the delayed train must prevent their going forward or backward at least half a mile, and *staying* there till the approaching train is stopped; and if a second, third, or fourth train is to

follow, the same precautions must be observed until the track is clear for any following train.

[NOTE.—SPECIAL RULES for the running of trains (for each road).]

IV. EMPLOYEES.

a. General Rules..... 37-41
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c. Enginemen and Firemen..... 70-84
d. Brakemen..... 85 90
e. Baggage Masters..... 91-92
f. Station Agents..... 93-99
g. Section Masters..... 100-103
h. Flagmen and Gate Tenders..... 104
i. Draw Tenders..... 105

(*a.*) *General Rules.*

37. Employees of the company must devote themselves exclusively to its service, obey promptly all orders they may receive from those in authority over them, and conform to all the regulations of the company. Negligence in the performance of duty is equivalent to incompetency, and, if not immediately corrected upon admonition, will always be good cause for dismissal from the service.

38. The *safety of the passengers* is the first consideration; to this, together with the *safety, regularity, and punctuality of the trains*, and the *comfort and convenience of passengers*, all operations of working or repairing the road must be completely and entirely subordinate.

39. All employees are expected to exercise the greatest care and watchfulness to prevent injury to persons or property; and they must in all cases of doubt take the course which involves no danger. They must be civil and obliging to passengers and others with whom their duties may bring them in contact, must not use profane or improper language, and must avoid altercations with any person.

40. The use of intoxicating drink on the road or abont the premises of the company, and smoking while on duty, are strictly forbidden. Any employee appearing on duty in a state of intoxication will be forthwith dismissed, and those who do not use intoxicating drinks will receive the preference in promotions and employment.

41. When on duty, all employees whose duties bring them in contact with passengers will wear a cap or uniform prescribed for their respective positions; and they will not be allowed to modify either in any respect, to suit individual tastes.

(*b.*) *Conductors.*

42. Each conductor is required to be familiar with the time tables and *all the rules* concerning the running of trains, whether they relate specially to his duties or not.

43. He will have entire charge of the train, and will make its safety his first care. He is responsible for its movements while on the road, and in the absence of a superior officer is to decide all questions relative thereto.

44. He will see that his subordinates are instructed in their duties, will be held responsible for their good conduct and prompt performance of duty, and will report to the Superintendent any misconduct or negligence on their part.

45. He must carry an accurate and reliable watch, regulating the same daily by the *standard time of the road*, and comparing it with that of his enginemen before starting on each trip.

46. He must see that his train is provided with everything required by the regulations of the road, including the tools and implements required by law, and the proper flags and lanterns for signals, as well as spare couplings, links and pins, and all other articles ordinarily required in emergencies; and that a brakeman is kept on the rear car while the train is in motion, and if train brakes are supplied, that the same are properly connected.

47. He must know that all switches which have been changed for his train are left right for the main track, unless they are in charge of a regular switchman, or the conductor of a following train is present and takes charge of it.

48. He will make reports of his train promptly, on the blanks provided for the purpose; and he will report *personally* and promptly, and, also, in writing, to the Superintendent or Assistant Superintendent, all *accidents* and all unusual occurrences.

49. When he has reason to believe that his train has passed over a broken rail, he must stop the train, and if he ascertains that such is the case, if the section master is not at hand, he will leave a brakeman with a red flag or lantern and torpedoes, sending him back a sufficient distance to prevent accident to any train following. He must also notify the agent at the next station and telegraph the fact to the central or terminal station.

50. He must see that the several rules in relation to signals are strictly observed.

51. PASSENGER CONDUCTORS will be subject to the foregoing general rules, concerning all conductors, and also to the following:

52. Each passenger conductor, when on duty, will wear the cap or uniform prescribed by the management. He must be at the station at least fifteen minutes before the time for starting his train; see that the baggage-master and brakemen are in attendance, and that the cars are clean, properly warmed and well ventilated, and, at night, well lighted; and he must be sure that the bell-cord is properly adjusted through all the cars of the train. If any car is not found in good condition and properly equipped, or there should be insufficient accommodation for passengers, he will notify the depot master, or other officer having charge of the cars, before starting.

53. He must look after the safety and reasonable comfort of passengers, and instruct his brakemen how to do the same; and he must endeavor to have passengers observe the following "Caution to Passengers:"

Not to get upon nor leave cars *while in motion*, but wait until the train has come to a *full stop*;
Not to put heads or arms out of car windows;
Not to stand upon the car platforms;
To get upon the train from the station platform, and not from the opposite tracks;
To enter the cars by the *rear* door and leave them by the *forward* door.

54. He will cause the name of each station at which his train stops to be distinctly announced in each car. If the train stops short or runs by a station, so that it must be moved again before a final stop, the call should not be given till the final stop. He must allow passengers sufficient time to enter and leave the cars in safety, assisting them when necessary, but avoiding any unnecessary delays, and adhering as closely as possible to the time table.

55. In his intercourse with passengers he must be polite and obliging. He must see that order and decorum are preserved in the cars, and prevent the annoyance of passengers by the rude or improper conduct of others. [If disorderly conduct is persisted in by any passenger after remonstrance from the conductor, such passenger should be removed to the baggage-car and detained there or ejected from the train at a station.]

56. When, for the non-payment of fare or disorderly conduct, it may become necessary to remove a passenger from a car, the conductor must be careful to use no more force than is absolutely necessary to accomplish the purpose. In every such case of ejectment he will ascertain the names and address of some of the passengers, who from a knowledge of the facts can be called upon to testify to them, if necessary, and send them with a full written statement to the Superintendent.

57. He will not permit any person, not authorized by the Superintendent, to sell books, papers or other articles upon the cars, nor allow passengers to be annoyed by traveling musicians or persons asking charity.

58. He will require of each passenger on his train a ticket or a pass signed by a proper officer of the company. He will require of any passenger failing to produce such ticket or pass the usual fare for the distance such passenger is going, in money. Such employees on duty as the Superintendent may designate, will also be passed free over such part of the road as their duty requires them to go over.

59. If any person refuses to show a ticket or pay his fare, the conductor will cause him to be arrested and dealt with according to law.

60. All money paid to the conductor must be noted on his way-bill, giving number of passengers and naming points at which each entered or left the train. All passes must be returned to the Superintendent or other proper officer.

61. Upon the arrival of a passenger train at its destination, the conductor must remain with his train until all the passengers have left it. He must see that the windows are closed, lights extinguished and that there is no danger from fire in the stoves, except where some other person is designated to perform those duties.

62. The conductor will promptly report to the Superintendent, or other proper officer, any damage which may occur to cars of his train, or any other cars or property belonging to the company, of which he may have knowledge.

NOTE.—[Special rules in relation to punching tickets, season ticket-holders, stop-over checks, &c.]

63. FREIGHT CONDUCTORS will be subject to the general rules concerning all conductors (59 to 69), and also to the following:

64. Each freight conductor will see to making up his train, and that the doors of all the cars are closed and properly secured. If any car is not so loaded that it can run with safety to the freight or train, he will notify the agent at the station and leave it to be reloaded.

65. Each conductor will be held responsible for the faithful performance of duty by the brakemen on his train, and will, in all cases, see that they are at their posts. The conductor will always station himself where he can see and signal his men, and must always have a brakeman on the rear car.

66. He will observe whether the bridge-guards are in good order, and if not, he must promptly notify the Superintendent.

67. He will see that his train is provided with the necessary signals, and that they are used according to the rules concerning signals, in case of accident or otherwise.

68. He must follow the time table as nearly as possible in running his train, and will be further governed by the *special rules* relative to his duty.

69. He will not allow any person to ride in the cars on his train without an order from the Superintendent or other proper official.

(*c.*) *Enginemen and Firemen.*

70. Each engineman is subject to the direction of the conductor while his engine is attached to a train.

71. He must carry a reliable watch, regulating the same daily by the standard time of the road, and always comparing it with that of the conductor before starting on each trip.

72. He must see that his engine is kept clean and in good order, that it is supplied with all necessary tools, and that everything is in perfect order and in its proper place. He must promptly report any defect to the Master Machinist for repairs.

73. He must never fail to have a head-light upon his engine when running at night.

74. He must run according to the *time table*, and the *special rules* of the road governing speed, and the general rules regulating the precedence and running of trains.

75. He must keep a vigilant look ahead, be watchful for all signals, and promptly govern his train in accordance therewith, stopping it if necessary to learn the meaning of any signal, and *always stopping* when there is a *danger signal*.

76. He must notice all whistling posts, and give the required warning for at least eighty rods, before crossing any highway or traveled road at grade.

77. He must bring his train to a full stop before reaching any railroad crossing, as required by law, and wait till he knows that the signal is right for him to proceed.

78. He must approach switches carefully, and if they are not right must stop. In thick and foggy weather he must take extraordinary precautions, both at switches and at all places where his right to proceed depends upon signals, *strictly observing the rules* in relation to special signals at crossings, junctions, drawbridges, etc.

79. When one train is following another, the engineman will approach stations with caution when there is reason to expect other trains to be standing there.

80. He will not allow any person to ride upon his engine without an order from the Superintendent or other competent authority, except officers of the road whose duties may call them there.

81. He must be familiar with *all* the rules in relation to the running of trains, and must at all times take every reasonable precaution to guard against accident, and *in cases of doubt must always adopt the* SAFE *course.*

82. In case of accident he will make a written statement of facts to the Superintendent or Master Machinist.

83. Firemen are under the direction of the enginemen when running, and must obey their orders, and must perform such duties about the engine as may be required of them.

84. Both engineman and fireman must be on the engine when it is in motion, except when the fireman is necessarily sent to a switch, crossing or signal station, or to warn other trains; and when the engine is standing, one of them must remain with it.

(*d.*) *Brakemen.*

85. Brakemen will be under the direction of the conductor while on the train. It is their duty to keep the cars neat and clean, to connect the bell-cord through all the cars with the engine, to take care of the lamps and stoves, and do such other work on the train as the conductor requires. They must be at their brakes while the train is moving, except when called away by direct order of the conductor.

86. One experienced brakeman must ride upon the rear car of every train, and it will be his duty to keep the signals for the rear of the train in good order and to attach them in the proper positions when running; and in case of accident, delay, or any appearance of danger, he will immediately provide for the safety of the rear of the train.

87. Brakemen, when on duty, must wear the prescribed cap or uniform.

88. They are expected to acquire a sufficient knowledge of their duties and familiarity with the road to be able to stop their trains at regular stopping places without the whistle being sounded for that purpose.

89. They will notify passengers upon the platforms of the cars that it is contrary to rule to stand there; they will be civil to all passengers, and give all proper information respecting their trains to those getting upon or leaving them while they are on duty; they will not smoke, read or converse, except to give necessary information, nor pass through the passenger cars except in discharge of their duty.

90. When trains break apart great caution must be used in applying the brakes so as to avoid a collision between the disconnected parts.

(*e.*) *Baggage Master.*

91. *Train baggage masters* are under the direction of conductors. They will wear the prescribed cap or uniform when on duty, and will not leave their cars on the arrival at the destination of the train until all baggage has been delivered. They are required to handle baggage carefully, and are to remember that the law imposes a fine of $50 for injuring or destroying baggage.

92. *Station baggage masters* will be at their posts during such hours as may be required, ready to attend to the wants of passengers. They will be polite and obliging to all, and give all proper information in relation to the transportation of baggage over connecting lines, etc., see that their rooms are in a neat and orderly condition, keep an accurate account of checks on baggage received or delivered, and report immediately to the proper officer any claim for lost or damaged baggage.

NOTE.—[Special rules in relation to baggage.]

(*f.*) *Station Agents.*

93. Station agents have charge of the company's property at their respective stations, and the general direction of the business of the road at those points, subject to the general rules and special orders.

94. They will see that all parts of the station buildings and yards are kept neat and clean, and must not permit disorderly or idle persons to loiter around the premises to the danger of property or the annoyance of passengers.

95. They are required to have their ticket-offices open at least fifteen minutes before the arrival of each train that stops at their station, and to keep them open till three minutes before the train's arrival. They must be prepared to give any information respecting trains upon the road, and concerning all connecting trains on other roads; must treat passengers with politeness and see that their subordinates do likewise. They will check the baggage of passengers and see that it is properly marked and put upon the proper train.

96. They will have charge of the tracks, sidings, switches, etc., at the station, and will be held *responsible for the security and position of the switches.* They will also see that cars on side tracks are properly blocked and do not obstruct the use of other tracks, or in any way endanger the safety of passing trains. When trains are due they must know that the track is all right for them to pass.

97. They will be held responsible that their stations are properly supplied with flags and lanterns of the different colors, and other signals.

98. They are required to notice all signals on trains and to govern themselves accordingly. They must show signals required by special rules, and in case of any danger to approaching trains must send signals to warn them. They must communicate promptly and without fail any dispatch concerning the running of trains to the conductors of such trains.

99. They are required to note the time at which any train passes their station, and to signal it to stop if following another within the time prohibited by the rules of the road. They are directed to report all cases of trains running contrary to the prescribed rules of the road.

(*g.*) *Section Masters.*

100. Section masters will daily examine the track on their respective sections and see that it is in good condition and safe for the passage of trains. They will also frequently examine the sides of all cuts and remove therefrom rocks, trees, stumps or earth which may be in danger of falling upon the track; guard all points where exposed to wash or injury of any kind, taking special care in stormy weather; keep rails clear at crossings during snow-storms; keep fences in repair and report the names of owners of cattle that may be found on the road; and they will see that no wood, lumber, sleepers or other obstructions are piled within *six feet* of the track.

101. They will *in no case* remove a rail or obstruct the track without stationing a man with a red flag one-quarter of a mile back, or in both directions if there is a single track, to warn approaching trains.

102. They must know the time when all regular trains are due, and keep the track clear for them, and must be on the lookout for flags or lanterns which announce extra trains, guarding the track till all such extra trains or engines have passed.

103. They will keep the Road Master fully informed of all that it may be necessary for him to know in regard to the wants of the track, and report promptly all slides, obstructions, defects of track and fires near the road.

(*h.*) *Flagmen and Gate Tenders.*

104. Flagmen and gate tenders must be provided with flag and lantern; they must know the time when each regular train should pass the highway where they are stationed, and notice all signals for extra trains, and keep a vigilant lookout for the same. When a train is approaching they must seasonably close the gate or show the signal and endeavor to prevent any one crossing the track, and must keep the gate closed or display their signal until the train has wholly passed. They will keep the track across the road clean, and in case of obstruction will warn trains by showing the danger signal.

(*i.*) *Draw Tenders.*

105. Draw tenders must be at their posts at all times required by the special rules relating to their draws. They must keep the draw closed, and in order for the passage of trains at all times when not required to be open for the passage of vessels. They must see that their signals are always in order, and must use the utmost vigilance in causing them to be shown whenever the draw is open and until it is completely closed and ready for the passage of trains.

They must be familiar with the laws of the Commonwealth in relation to drawbridges on railroads, and must strictly observe the special rules of the road relating to the draw under their charge.

On motion of Mr. Paine, the above report was accepted and ordered printed in these proceedings.

MISCELLANEOUS.

On motion, Messrs. McMullin, Barney and Fink were appointed a committee to report time and place for the third quarterly meeting of the Association.

The President, in accordance with the request of Mr. Talmage, reconstructed the committee on the best method of dispatching trains by telegraph. It now consists of Messrs. Talmage, Gimperling and Anderson.

The committee to select time and place for the next meeting of the Association reported, recommending the first Tuesday in October, at Louisville. The report was accepted, and, on motion of Mr. Fink, it was decided to recommend that the Time-Table Convention meet at the same time.

On motion of Mr. Horace Scott, the third article of the by-laws was amended to read, "that absent members shall notify the Secretary of their dissent, in writing, within fifteen days after the receipt of notice of the action of the meeting."

RAILROAD MAIL SERVICE.

The President submitted the following communication, and accompanying tabular statement:

POST OFFICE DEPARTMENT,
CONTRACT OFFICE,
WASHINGTON, D. C., July 6, 1872.

DEAR SIR: Your favor of the 3d inst. is at hand, and I have the honor herewith to inclose statement of railroad mail service, as per request.

Very respectfully, etc.,
JOHN L. ROUTT,
Sec. Asst. P. M. General.

THOMAS ALLEN,
Pres. West. and South. R. W. Association, Kennard House, Cleveland, Ohio.

RAILROAD MAIL SERVICE.

Statement compiled from the printed Annual Reports of the Post Office Department, showing the amount of railroad mail ser-

vice and the cost thereof, from the commencement of such service, in the fiscal year ending June 30, 1836, to June 1, 1872.

DATE.	Length of Routes.	Annual Transportation.	Anndal Cost.
	MILES.	MILES.	DOLLARS.
June 30, 1836		1,878,296*	.....
June 30, 1837	974	1,793,024*	$307,444*
June 30, 1838	.....	2,356,852*	404,123*
June 30, 1839	.....	3,396,055*	520,603*
June 30, 1840	.....	3,889,053*.	595,353*
June 30, 1841	.....	3,946,450*	585,843*
June 30, 1842	3,091	4,424,262*	432,568
June 30, 1843	.....	5,692,402*	733,687*
November 4, 1843	3,714	.....	531,752
June 30, 1844	.....	5,747,355*	802,006*
June 30, 1845	.....	6,484,592*	843,430*
October 31, 1845	4,092	.....	562,141
June 30, 1846	.....	7,781,828*	870,570*
November 1, 1846	4,402	.....	587,769
June 30, 1847	.....	4,170,408	597,475
November 1, 1847	4,735	.....	597,923
June 30, 1848	.....	4,327,400	584,194
October 1, 1848	4,957	.....	587,204
June 30, 1849	5,497	4,861,177	635,740
June 30, 1850	6,286	6,524,593	818,227
June 30, 1851	8,255	8,364,503	985,019
June 30, 1852	10,146	11,082,768	1,275,530
June 30, 1853	12,415	12,986,705	1,601,329
June 30, 1854	14,440	15,433,389	1,758,610
June 30, 1855	18,333	19,202,469	2,073,089
June 30, 1856	20,323	21,809,296	2,310,389
June 30, 1857	22,530	24,267,944	2,559,847
June 30, 1858	24,431	25,763,452	2,828,301
June 30, 1859	26,010	27,268,384	3,243,974
June 30, 1860	27,129	27,653,749	3,349,662
Discontinued May 31, 1861	6,886	5 701,093	978,910
In operation June 30, 1861	22,018	23,116,823	2,543,709
June 30, 1862	21,338	22 777,219	2,498,115
June 30, 1863	22,152	22,871,558	2,638,517
June 30, 1864	22,616	23,301,942	2,567,044
June 30, 1865	23,401	24,087,568	2,707,421
June 30, 1866	32,092	30,609,467	3,391,592
June 30, 1867	31,015	32,437,900	2,812,600
June 30, 1868	36,018	34,886,178	4,177,126
June 30, 1869	39,537	41,399,284	4,723,680
June 30, 1870	43,727	47,551,970	5,128,901
June 30, 1871	49,834	55,557,048	5,724,979
June 1, 1872	57,114	63,673,099†	6,879,366

* Railroad and steamboat service combined. No separate report.
† Estimated.

General J. H. Hammond suggested the propriety of appointing a committee to investigate and report upon the kinds of wood used in the construction of cars. Referred to the Executive Committee.

Mr. Albert Fink moved that a committee be appointed to inquire into the cost of transportation of mails and postal cars; also to ascertain the basis on which the Post Office Department arranges compensation for the service rendered by the different railroad companies, and whether the basis is a proper and correct one, and if not, why not? and suggest a proper basis. Adopted.

The thanks of the Association, on motion of Mr. A. W. Soper, were extended to the proprietors of the Kennard House for their courtesy and kindness in providing the use of a room for the meeting of the Association.

There being no further business before the Association, on motion of Colonel A. Anderson, it adjourned.

Respectfully submitted on behalf of the Association.

THOMAS ALLEN, *President*, St. Louis, Mo.
JOHN E. SIMPSON, *Secretary, pro tem.*, Indianapolis, Ind.

SUBJECTS AND COMMITTEES FOR NEXT MEETING.

The Executive Committee announce the following special committees to report at the next meeting:

1st. *To Prepare a Plan for the Organization of a National Railway Telegraph Company, if, after a Careful Examination, it should be Deemed Necessary.*—E. G. Barney, Gen. Sup't Selma, Rome & Dalton R. R.; A. A. Talmage, Gen. Sup't Pacific R. R. (of Mo.); Gen. J. H. Hammond, Vice-President Macon & Brunswick R. R.

2d. *On the Best Method of Dispatching Trains by Telegraph.*—A. A. Talmage, Gen. Sup't Pacific R. R. (of Mo.); J. E. Gimperling, Gen. Sup't Louisville, Cincinnati, & Lexington R. R.; Col. A. Anderson, Vice-President Toledo, Wabash & Western R. R.

3d. *Upon the Question of Adopting a Uniform System of National Time for Time-Tables.*—Robert Harris, Gen. Sup't C. B. & Q. R. R.; E. G. Barney, Gen. Sup't Selma, Rome & Dalton R. R.; J. F. Boyd, Gen. Sup't St. Louis & Southeastern R. R.

4th. *On the Relation of Railways to Express Freight Lines and their Management.*—Hon. Jos. E. Brown, President Western & Atlantic R. R. (of Georgia); Col. A. Anderson, Vice-President Toledo, Wabash & Western R. R.; Horace Scott, Gen. Sup't Jeffersonville, Madison & Indianapolis R. R.

5th. *On Sleeping Car Contracts, and Repairs of such Cars.*—M. Hughitt, Gen. Sup't C. & N. W. R. R.; L. P. Grant, Gen. Sup't A. & W. Pt. R. R.; A. Mitchell, Gen. Sup't Illinois Central R. R.

6th. *On Rules to Govern the Interchange and Mileage of Sleeping Cars, Passenger Coaches and Baggage Cars.*—J. C. McMullin, Gen. Sup't Chicago & Alton R. R.; Albert Fink, Vice-President L. & N. R. R.; W. C. Van Horne, Gen. Sup't St. Louis, Kansas City & Northern Railway.

7th. *On the Best Method of Heating and Lighting Cars.*—O. Chanute, Gen. Sup't L. L. & G. R. R.; A. W. Soper, Gen. Sup't St. Louis & Iron Mountain R. R.; W. K. Muir, Gen. Sup't Great Western R. R. (of Canada).

8th. *On the Proper Rules and Charges to be Adopted for Demurrage in the Interchange of Freight Cars, and Delays in their Return. How shall these Charges be Apportioned when Foreign Cars Run over Several Connecting Lines?*—Geo. H. Nettleton, Gen. Sup't A. T. & S. F. R. R.; E. W. Cole, Pres't N. & N. W. R. R.; A. N. Chrystie, Vice-President O. & M. R. R.

9th. *On the Best Material for the Construction of Cars.*—Gen. J. H. Hammond, Vice-Pres't Macon & Brunswick R. R.; Robert Harris, Gen. Sup't Chicago, Burlington & Quincy R. R.; W. C. Van Horne, Gen. Sup't St. Louis, Kansas City & Northern R. R.

10th. *To Inquire into the Cost of Transportation of Mail and Postal Cars, to Ascertain the Basis on Which the Post-Office Department Arrange Compensation for the Service Rendered by Different Railroad Companies, and Whether that Basis is a Proper and Correct One, and if not, why, and to Suggest a Proper Basis.*—A. Fink, Gen. Sup't L. & N. R. R.; O. Chanute, Gen. Sup't L. L. & G. R. R.; A. Mitchell, Gen. Sup't Illinois Central R. R.

11th. *On the Practicability of adopting a Uniform System of Signals.*—John E. Simpson, Gen. Sup't Vandalia Line; A. W. Soper, Gen. Sup't Iron Mountain R. R.; Capt. E. G. Barney, Gen. Sup't Selma, Rome & Dalton R. R.

—Mr. T. M. Bannister, Assistant Engineer of the Jackson, Lansing & Saginaw Railroad, was thrown from a hand-car on the night of August 23, the hand-car having run into some cars left standing on the track. Mr. Bannister was so severely injured about the head that he is not expected to recover.

Contributions.

Railroad Employees and the Pass System.

LARAMIE, W. T., August 29, 1872.

TO THE EDITOR OF THE RAILROAD GAZETTE.

The question, "How long should an engineer remain at his post?" considered in relation to an abolition of the free-pass system, will serve to show the inconsistency of the measure. There is hardly a director or superintendent but would prescribe the duty of an engineer, and have him stay at his post long enough at least to *require a miracle in circumstances to escape injury or death.* Engineers, conductors, brakemen and switchmen are often placed in situations that require extraordinary presence of mind and courage, in order to act wisely, and thereby save life and property, and there are many instances where service of this kind is rendered on our roads and little notice taken of it; its frequency makes it too common to mention especially. I speak more particularly with regard to saving railroad property.

When an employee puts his limb or life in the balance to save property he places much more at stake than the company does. The whole railroad property is not so much to the individuals owning it as the man's life is to himself. How very small, then, to refuse free passes to faithful employees! How much such refusal would balance against the companies' interests it is impossible to compute. To be selfish to employees engenders a corresponding feeling in them to mete out as little labor as possible and evade the interest of the employer in every possible manner. And with so much property in their care as a railroad company necessarily gives them, "how great the means and opportunity" to carry out these feelings when they are so disposed. Railroad men have their prescribed duties, and unless they have the interest of the company at heart they are not likely to go beyond them to dispatch business or save property, which is almost every day required among train-men.

Economy in this respect must be to cultivate by every possible means an affectionate interest in every one of the employees of a railroad; for just as much as the affection that soldiers bear to their general contributes to his success, so will it do for a railroad corporation. All trainmen will make 36,500 miles per year. Suppose a reward for faithful services of one mill per mile in the shape of free passes were given, this would amount to but $36.50, which would be considered liberal by the men receiving it. Yet how cheap for a company.

An abolition of the free-pass system is extremely short-sighted and detrimental to the best interests of railroads and the public. The greatest obstacle to the granting of free passes is contained in the means adopted to show how many are given, like a man keeping an account of good deeds done, and moneys given to charity, the tendency of which would be to reduce his usefulness and lower his manhood. By all means abandon such accounts, and the anxieties will disappear. It becomes America to be liberal; liberality established her independence, and is bred into her rising generation; it brings the emigrant to her shores, and interests him in her welfare, receiving, extending and propagating liberality. You may reduce an employee's wages, cripple him and refuse to pay damages, or discharge him for the slightest offense, *but in nothing can you engender his disgust so much as to refuse a free pass,* after he has been employed long enough to merit by faithful service a favor. The feeling is augmented because no one realizes that it costs a company anything to grant a free pass, and probably because it has been the custom from the beginning.

And railroads with each other, in a business point of view, assist each other by placing ready help about the country. There are thousands of railroad men in the West that owe their presence here to the free-pass system, a decided benefit to our roads; and as every additional road increases the traffic of the country, such assistance reverts back in increased trade. Hence the benefit arising by a distribution of the labor to the best advantage for the development of the whole country.

C. H. CLARK.

"Tangency"—Importance of Accurate and Clear Field Notes.

ST. JOSEPH, Mo., August 25, 1872.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have read with much interest the papers by "Hoosier" on "Practical Field Engineering." In the paper on location of curves, a definition in quotation is given—"point of tangency." An eminent engineer tells us young ones that "P. T." stands for point of *tangent;* that there is no such word as tangency in our language. We look in our dictionary,* and it is not there. In Henck's Field Book we find both ends of the curve called "tangent point." Will "Hoosier" please give his authority for the quotation, "point of tangency."

Draughtsmen find a great deal of fault with the notes of field engineers, and often not without cause. It cannot be too strongly impressed on the minds of young engineers that full, simple and well systematized notes are of the utmost importance. When you make a calculation of the tangents of a curve, put the result in your book of notes; also the degree of curvature, radius of curve and deflection angles for each station. Of course you must not omit the points at which your curve begins and ends. Then the draughtsman who is plotting from your notes, while you are perhaps inaccessible in the field, may clearly understand what you have done, and be able to proceed with his work, even if you have made considerable errors.

It frequently happens from bad chaining, errors in reading angles, etc., that the first time a curve is run it does not terminate as desired; and in such cases it is often the practice of engineers to compound, or, what is worse, to *fudge* the curve to the proper termination. This latter work is seldom mentioned in the note-book, and, as a natural consequence, the map is plotted incorrectly, unless the error is so large as to become apparent in plotting.

When you have made an error, say so, and put down your correction of it plainly in your note book. Do not be ashamed of it. All are liable to err. S. S.

* Webster gives "tangency," defining it as "a contact, a touching." In fact, "point of tangency" is identical in signification with "tangent point."—EDITOR RAILROAD GAZETTE.

A Mistaken Supposition.

LOUISVILLE, Ky., Aug. 27, 1872.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I notice in your issue of the 24th instant, under the head of "Contracts Let," the following:

"The contract for the Elmira bridge—advertised in our columns a few weeks ago—was awarded to Mr. Bristol, of Owego, for $63,000. Mr. Bristol is almost unknown as an engineer, and probably this is one of his first ventures in bridge building."

Being satisfied that you would do no intentional wrong to the gentleman spoken of, I must inform you that you are mistaken in your supposition. Mr. Wheeler H. Bristol, of Owego, N. Y., is a bridge builder of many years experience. (I have known him myself in that capacity for fifteen years.) Mr. B. was of the "McCallum Bridge Company," "McCallum, Bristol & Co.," "Bristol & Skidmore," etc., etc. Instead of the Elmira bridge being his "first venture," it was not among the first *hundred.* He has built a half mile of bridges, upon one road alone, for the writer. As to his engineering qualities, I will simply say that Mr. Bristol came very near being the State Engineer of your own State, but a compromise was effected between Mr. B.'s friends and those of another gentleman—giving the Treasurership of the State of New York to Mr. Bristol, which office he held for a number of years, till defeated by the Republicans a year or two since. B.

To Master Mechanics.

SECRETARY'S OFFICE OF THE AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION, CINCINNATI, Aug. 28, 1872.

TO THE EDITOR OF THE RAILROAD GAZETTE:

You will confer a favor by calling attention to the fact that but few of the members of the Association have complied with the resolution requiring them to send post-office address to the Secretary. Letters addressed to Messrs. H. Anderson, W. D. Rowley, and H. A. Little have been returned, and the Secretary will be much obliged if these gentlemen, and those who do not receive their letters promptly, will forward correct address.

J. H. SETCHEL, Secretary.

A Martyr to Narrow-Gauge Principles.

The September number of the *Locomotive Engineer's Journal* has the following letter, in which is described the "pursuit of his ideal" by a believer in the narrow gauge, and its consequences, set forth, perhaps appropriately enough, in what we may call "narrow-gauge orthography:"

DERE MISTER EDITUR—

it has bin sum time since i rit to you an as ive seen a heap of trubel since i thort i wood tel you all about it an ax youre advice i recon if i hed axed youre advice fust i woodent bin in this fix ime in now. Since i rit to you the last time i hev moved into the kentry but ime a rale rode man yet cos i watch a crossin about 2 miles from teown. i dont hev very much to du an i reads an studdys a heap i hev to go to town every onct in a wile. When ime gon marthy mariar or sary ann watches the crossin. Wall as i was tellin you i studdys lots an i was thinkin 2 day if i coodent fix up sum wa to ride to teown an i was wishin i hed a rale rode of mi own a nice little narrer gage rode like what i red about in the papers, then all of a suddent like i thort how i mite git a narrer gage hoss a rale little poney what woodent ete much an what wood carry as big a lode an go just as fast an as mutch of it as a great big over grone slabsided animule what wood ete a rick of ha an a crib of covne in a week. Wall mister Editur as i tell you i reads lots an studdys a heap so I thunk a long time about it an the more i thunk an figgered the better i liked the idere of a narrer gage hoss fur i kinder wanted to beleve that wa enny how. After figgerin about three weekes i found i cood keep mi poney on about 1 what i wood hev to give a ful grone hoss an he woodent cost morn haff so mutch to begin on an he woodent take up nere the room in the stable an evry body nose that poneys is tuffer nor big hosses so i thort he woodent never git sick nor nothin. i wanted to be shure i was rite so i stoped evry body what cum to the crossin an i torked narrer gage to them an axed their opinions of narrer gage rodes an about poneys an the like till i du beleve they wood hev called me ole Narrer Gage if i hadent bin so big. Mi ole scule master allers tole me figgers won't lie so i figgered it up all rite an then i found it wood be cheeper to by a poney than to do without fur the difference between a poney an a big hoss if properly invested wood soon pay fur the poney an ther wood be enuff left to buy ha an corn so i went to a farmer what lived close to the crossin an kinder careless like axed him the price of sum of his hosses an to mi surprise an delite i found i cood by a poney he hed fur less nor haff what he axed for his big hosses. you bet i dident wate long afore i bot him but when it cum to paying fur him it squeezed me rite sharp i tell you for i hed to give all the munny i hed and a morgage on the poney an the cow. Wall i took the poney hum an i called him Narrer Gage. I hed no feed nor saddel but i thort if i cood borry enuff munny to by them i cood pay it with part of the difference that i figgered out between a poney an a hoss. i finally got the saddel an enuff feed for a while so i thort one day i wood go to town i saddeled up Narrer Gage an started we got along fust strate but he swet lots and i axed a frend in town about it an he sed he thort i was a lode fur a full grown hoss i no i was gittin fat but i thort a hoss ort to carry a man enny how. i got a dollars worth of coffee and a dollars worth of sugar an a jug of molasses an sum flower an a pece of bacon an sum other little notions an put them in the big sack an put them behind the saddel on Narrer Gage. The grocery chaps sed that was a lode without me but i hed red so mutch about what narrer gages wood du that i node better so i got on an we started i was mity proud to see how well narrer gage went along with his lode i seed he swet lots but when I was a young man an worked in harvest i used to feel better when i swet free so i thort it was all rite. Bimeby Narrer Gage stoped and he peared to be all of a trimble and his yeres flopped down like a wilted cabbage leaf an i got down an led him under a tree and tried to git him to ete some grass but he woodent do it so after a while i led him towards home but the sack fell off so many times I hed to carry that to an i thort when i got home i was most rosted. i put Narrer Gage in the

stable an after a while he began to ete an when nite cum i fed him good and put the cow in the other stall an fastened the door. Next mornin i got up erly an went out to see how Narrer Gage was gettin along and to mi surprise found him loose he had chawed his halter in tu an broke down the petishin between him an the ole cow an bit and kicked her till she didn't have a patch of fur on her back an ribs as big as a peece of paper. He got inter the feed an what he didn't ete he scattered so bad that it want no yuse triin to pick it up. i tell you when i see all that i thort it took more room fur a narrer gage hoss than fur the other kind. After several dase I got all fixed up agin an a nabir cum in an i tole him all about it he listened to all i hed to say and then tole me i was runnin a narrer gage hoss on broad gage principels an i must git a little narrer gage wagon fixed up what woodent wa morn a hundred pounds an wood carry about 4 times as mutch. i coodnt swaller that very well but he hauled a papir out of his pocket what tole about narrer gages an how a narrer gage man sed that mister Farley that's another narrer gage feller hed bilt a keer that only wade 3000 pounds an wood carry 10,000 or 12,000 pounds of frate so i thort i was all rite cos i hed heerd tork of mister Farley before an i node he was a college bred chap cos he rit lots fur the nuse papers about narrer gage an sitch like. i took mi nabors advice i borrored a little money of him an sum others an got me a little narrer gage wagon bilt an I went to teown agin. i recollected what he tole me about broad gage principels so i didnt put on only haff a lode just to try, i started home an the first hill i cum to i got stuck arter a while i got out of that an when i got home i found a spoke broke in one of the weels. The next time i went to town i got that fixed an when i cum home i found one of the shafts was busted an it hes bin pretty much that wa ever sence till the last time an i broke down entirely. Now mister Editur please tell me what is best to du, if i swop Narrer Gage off for a good hoss i wood hev to give enuff bute to by a hoss at onct, i cant sell Narrer Gage fur every body nose how it is therselves, he aint no use to me even if i cood keep him, an sumhow i dont see that difference that i figgered out between a narrer gage hoss an one of the other kind, but figgers wont lie so it must be thar somewhar. Mebbe if i cood git him out to the mountains he mite be of some account there, i dont see but what i will hev to do one or too things, i will have to let Narrer Gage an the cow both go an loose what munny ive pade or i will hev to repudiate and suspend payment indefinitely.

Ive got Marthy Mariar to fix this up and tel me how to spell all the big words so i gess youle find it all rite.

With my best respects to Mrs. Editor an the children, I am yours till deth, P. J.

Improvement in Metals for Castings.

In the RAILROAD GAZETTE of April 20 we described the process of making what are called "steeled" car wheels, then in use at the establishment of Messrs. Whitney & Sons, of Philadelphia. Mr. George Whitney, of that firm, has quite recently taken out a patent for an improvement in the process we have heretofore described. The following description is copied from his specification:

My invention consists in an improved metal for castings, said improved metal being the product of wrought iron and pig iron, or of wrought iron, pig iron and steel melted together, substantially as hereinafter set forth.

I believe that I am the original and first discoverer of the fact that wrought iron and pig iron, or wrought iron, pig iron and steel, charged together into an ordinary cupola or air furnace, may be melted without any flux, but in the same simple and well-known way as if the entire charge was pig iron alone, and this with any proportion of wrought iron, say, not exceeding 50 per cent. of the whole charge. The product of this mixture I am unable to designate by any specific name, but I have demonstrated by numerous tests that castings made from such product—where the charge consisted of 80 per cent. of pig iron and 20 per cent. of wrought iron, or of 80 per cent. of pig iron, 10 per cent. of wrought iron, and 10 per cent. of steel—possess the qualities of strength in a degree superior to any castings heretofore obtained from pig iron alone, or from the various mixtures of pig iron and steel more recently introduced into public use.

I have in practice varied the proportions of wrought iron and the kinds of pig iron, as exemplified in the following charges, from which I have found a good result in each case—that is to say: Charcoal pig iron, 40 per cent.; anthracite pig iron, 40 per cent.; wrought iron, 20 per cent. Again, anthracite pig iron, 80 per cent.; wrought iron, 20 per cent. Again, charcoal pig iron, 40 per cent.; anthracite pig iron, 40 per cent.; Bessemer steel, 10 per cent.; wrought iron 10 per cent. Again, anthracite pig iron, 80 per cent.; Bessemer steel, 10 per cent.; and wrought iron, 10 per cent. From which examples it will be fully understood that, while in all cases the percentage of pig iron should preponderate in the charge, exactly the percentage of wrought iron, or of wrought iron and steel, to be used in any particular instance must necessarily depend upon and be adapted to the particular castings to be produced, and, with reference to these conditions only, must be left to ordinary skill and judgment, the same as in the case of castings made of pig iron only. The pig iron should always preponderate, as I have found that the product obtained from equal parts of pig iron and wrought iron melted together is a hard and brittle metal, unsuitable for good strong castings, and that the percentage of loss in melting such a mixture is very great.

In my practice I have used for my wrought iron old railroad rails cut into lengths about the same as the pieces into which the pig iron is usually broken up for charging into the ordinary cupola-furnace. The charge is thus made up in the ordinary well-known way.

I do not, of course, confine myself to the use of the ordinary cupola or air furnace for melting the charge, although I deem them the best, because the most economical apparatus; but

What I claim as my invention, and desire to secure by letters patent, is—

As an improved metal for castings, the product of wrought iron and pig iron, or of wrought iron, pig iron and steel (the pig iron preponderating in the charge), melted together substantially as hereinbefore set forth.

The Coal Question in England.

That the English people are becoming very much concerned in regard to the coal supply in their country is very plain from the frequent discussions of the question which are published. At the recent meeting of the Institute of Mechanical Engineers, the following extract from a letter by Professor Levi was read, which, with the following summary, we have compiled from *The Engineer*:

"Whether or not the present advance may be sustained, it is beyond all doubt a fact that the permanent value of coal is increasing every day, for the simple reason that during many years past the consumption has more than overtaken the supply, and that, to all appearance, the demand is likely to increase still more rapidly than the present limited sources of supply can satisfy. At this moment, though a considerable extent of coal area may be found in many countries in the old and new worlds, Britain is the only great producer of that all-useful fuel. While 120,000,000 tons a year are extracted from the British mines, not more than 60,000,000 to 70,000,000 tons a year are obtained from the mines of all other countries; and thus to supply the wants of the whole world, we have at most only 200,000,000 tons a year.

"But of this quantity England herself consumes one-half, being at the rate of more than three tons per inhabitant; and the four other producing countries of any importance—France, Germany, Belgium and North America—consume more than they produce. Thus in reality a considerable part of the world depends for this important fuel on the quantity that England is pleased to send out from year to year. As might be expected, under such circumstances, the exports are increasing rapidly. During the last fifty years the exports have been as follows:

	Average tons per annum.
1821–1830	332,000
1831–1840	947,000
1841–1850	2,397,000
1851–1860	5,380,000
1861–1870	9,570,000
1871	12,816,000

It was said that, were it not that Germany has need of all her own coal, it could be shipped from Westphalia into the Thames by way of Rotterdam or Flushing at a price not greater than Newcastle coal now fetches in London. In regard to the supply, it is not, as has been often shown, a question when the coal shall be all gone, but when it shall be dearer here than abroad; and at this moment it is almost already at that point.

It is said that some of the English steamers running to New York now take coal at the latter port for the eastward voyage, and Dr. Siemens expresses apprehension that the maritime supremacy of Great Britain may from this cause be disastrously shared by other nations.

The introduction of fuel-saving appliances in all processes where coal is used was recommended, and American domestic cooking and heating stoves were favorably spoken of in that connection. In steam-navigation, engineers have already within ten years reduced consumption one-half; still we are a great way from the theoretic limit of economy.

The means recommended for reducing the consumption still more are, increased steam-pressure and the securing of more perfect combustion. Greater economy must be sought in improved boiler construction, as there is no longer much room for improvement in the engine.

At the works of the Messrs. Laird, 65 lbs. per square inch is employed. The Messrs. Forrester & Co. use 80 lbs.; but higher pressures, reaching even to 150 lbs., have been attempted. The boilers for the pressure named are thus described:

"Externally they are plain cylinders, of from 9 feet or 10 feet to 12 feet or 15 feet diameter, the lengths being from once to twice, or rather more, the diameter, and the ends flat, and stayed all over.

"These large diameters involve great thickness of shell-plates, from ⅞in. to 1¼in. thickness being in use. The joints are double-riveted, and generally lapped. The holes are punched, and the riveting in the Liverpool shops, though not so universally elsewhere, is done by machine. At Laird's, the edges of the plates are all planed, which insures perfect caulking and perfect berth, and the rivets are closed by one of Tweddell's hydraulic machines, elsewhere by steam. The enormous diameter given necessarily to these single-cylinder boilers, involving this great thickness in the plates of the shell, carries with it some serious evils, even at present pressures, and forms practically the difficulty as to largely increased pressure. Almost every element of uncertainty in boiler-making is introduced by the use of these enormously thick plates. The material is not so certainly good as that of plates even of same iron when rolled down thinner. It is far from certain that no injury is done to the tenacity of such thick plates by bending to curved form, whether bent hot or cold, or, if any, how much. The strain on the metal by punching is very severe, and yet its ill effects, if any, are not easily ascertainable."

To meet these difficulties, diminution of the diameter of boilers was recommended when high pressure is used.

The Use of Railroads in War.

The current number of the "Proceedings of the Royal Artillery Institution" contains a valuable paper communicated by Major General Sir David Wood, and written, if we may judge from intrinsic evidence, by a German officer, on "The Use of Railroads in War." This paper contains some calculations which will probably startle those who assign to railroads an importance in war which they do not really possess. Passing by the facts that the railroad is of use only in certain directions (that troops traveling by this means cannot change their direction at any moment, and that this limited power of direction necessitates that troops traveling by rail shall be covered by other troops—not always an easy matter over long distances—that it is scarcely possible to execute a concealed movement by rail, and that the effect upon the discipline of young troops is unavoidably bad, while such journeys diminish their usefulness as marches increase it) we reach certain considerations which are certainly worthy of attention. For example, the movement of troops by rail necessitates very considerable rolling stock of a particular kind. You cannot improvise railway carriages and locomotives of the exact dimensions required for a particular line, and yet no movement along the line can take place without such carriages and locomotives. When the railways are private undertakings, it is not to be expected that they will commonly possess the amount of rolling stock necessary to satisfy the requirements of war; and the author of this paper suggests whether the State would not do well to keep in reserve a sufficient number of railway carriages to supplement the private resources of the country—including proper carriages for the transport of the wounded and for ammunition. What the amount of rolling stock required for the transport of even a single corps d'armee is, few persons perhaps understand. The paper now under consideration contains some valuable statistics upon this subject. Taking an army corps of the German strength, viz.: 25 battalions of infantry, 6 cavalry regiments, 16 batteries, 1 pioneer battalion with light pontoon train, 3 light field hospitals and 1 heavy ditto, with at least 8 provision or ammunition trains, we find that no fewer than 83 trains, each consisting of from 60 to 80 carriages, would be required (or, omitting at a pinch the ammunition and provisions, 64 trains), and this train, from its weight, could only travel at the rate of a heavy goods train, besides having to make pauses at the different stations. The greatest speed which can be calculated upon is, therefore, from 140 to 170 English miles in the twenty-four hours. Again, "the time between the trains depends on the line being single or double, unless there are enough trains at the starting point for the whole transport, so that none need be returned. The complication and delay in the case of a single line, on which the returning trains can only pass the advancing trains at the stations, are enormous. Further, the delays *en route* are in any case necessarily considerable, as the men have to be fed and the horses watered at certain stations, to be determined on beforehand, and this, it is stated, even with the best preparations, "cannot take less than an hour, not including the getting in and out." These remarks bring us to some rather startling practical conclusions. In the first place, even on a double line, an interval of not less than two hours between the trains is necessary. Only when the journey is so short—say twelve hours—that no refreshment is necessary, can the trains follow each other at intervals of half an hour. Practically it will be found that no greater rate of advance than the following is possible: Upon single lines, six to seven trains per day; upon double lines, ten trains per day. It follows, then, that 36,000 men in fighting order require for a journey of 140 to 170 miles 9 3-10 days on a double, and 14 days on a single line (counting one day for the time they are actually moving, and 8 3-10 days for the rate at which the required trains can be run on a double line, and 13 days for the rate at which the same trains can run on a single line). No doubt a certain proportion of the men will arrive at the end of the first day and some more each succeeding day; but if the whole corps is required, the time will be as above stated. Now, it is calculated that this force would in seven days be able to march 84 English miles, and in eleven days 126 English miles, without making forced marches. So that if the distance is less than eighty-four English miles, "a body of 36,000 men will reach their destination sooner by marching than if sent by a double line of railroad, and up to a distance of 126 English miles marching will be preferable in point of time to a single line of rails." If the troops are not wanted immediately, and the march is not hurried, then 36,000 men would arrive sooner by a double railroad than by marching, when the distance does not exceed ninety-eight miles. The broad conclusion can best be given in the author's own words: "By double lines troops can only be brought into battle by the railroad with advantage when the number of miles (English) is more than two and a half times the number of thousands of the troops, and by single lines only when it is three and a half times the number of thousands. * * * For instance, 60,000 men which are wanted for battle will arrive at the same time from a distance of 140 miles, whether they go by rail or march; under 140 miles they will arrive sooner marching; over 140 miles sooner by rail. When the rail is single, they would march 210 miles in the same time as they would take by rail; under 210 miles they will arrive sooner marching; over 210 miles sooner by rail." There is, however, one way by which the rail may be greatly utilized, and some surprise is expressed in this paper that the French did not take advantage of it more frequently—as they might have done in the second fight around Orleans—during the battles in and around the woods of Marchenoir.

But the main use, the author thinks, of railroads in war is the conveyance of provisions and reserve of all sorts. "In this the railroad does such good service that by its means alone can war on the large scale of the present day be carried on. Armies have become so large that the land will not support them if they have to remain long in one place." There are then some interesting calculations which our space will not permit us to deal with on the subject of provisions, the broad result of which is that a railroad with five trains, of sixty wagons each, can secure the maintenance of an army of 300,000 men and 60,000 horses for one day. This paper is full of most valuable statistics, and may advantageously be commended to the attention of our military authorities. Unfortunately, we have no special "Intelligence Department"—as we ought to have—by which such information as the article contains can be assimilated.—*Pall Mall Gazette.*

The Sick Baggageman.

The St. Louis *Democrat* thus foully asperses the character of that mild, gentle and excessively careful class of railroad employees, the baggagemen:

The affection entertained by railroad men for each other is well known. Rude as many of them are, when pain and sickness attack a fellow none are so prompt and so generous to assist him, and hands accustomed to hold the grinding brake with the strength of a giant, suddenly become soft as the fingers of a woman in works of charity toward the helpless. A most touching instance of this nature it is the office of the reporter for the *Democrat* to chronicle to-day.

From the windows of the *Democrat* office all along Fourth street may be seen numerous railroad offices, before which constantly draw up huge transfer 'buses, from each of which pours, like Noah's family out of an ark on wheels, a long file of men in dusters, and women with bloated carpet-sacks and ankles. Express wagons, too, abound, from each of which is hurled, with a crash like thunder, an avalanche of trunks. Yesterday, about 5 o'clock, just as the heat of the day had ceased, and a slight breeze played along the street, a small express wagon, containing three men, drove up at a slow pace. One who got between, and was supported by the other two, had, it was evident from his pallor, only recently recovered from illness. His companions were in perfect health. All three, it was clear from their beards and the cut of their clothes, were railroad men. The express wagon stopped and the men got out, the sick one with great difficulty. His companions stood by him, watching him with an infinite solicitude.

"Well, Doc., old fellow," said one, "you'll be all right in a day or two; won't you? Feel better now? Looks like old times, don't it? Hear Billy rattle them checks? O, it's biz, it is, you old son of a thief."

"Well, Ed.," replied the sick man, wearily, "it does seem good, after being in bed for two months, to see the boys hustle them old trunks round lively; but I'll never be the man I was before the rheumatics took me. I'll never sling a trunk again, Ed."

"Yes, you will, too," replied his comrade, cheerfully. "Before the next change in the time-tables you'll be wrestling h—l out of them Saratogas. The doctor says so, and he ought to know. Try now, Doc.; he says it'll do you no end of good if you can only get up your spirits again. Can't you waft this little oil-skin carpet-bag?" he continued pleadingly.

"No go, Ed.," answered the invalid, with a touch of despondency in his voice, "the Doc. ain't what he used to was, nohow."

"Well, but Doc.," continued his friend, "s'pose we get an ax and start that little trunk there at the corner; couldn't you bust it? It might do you good."

Ere he could answer, a large express wagon drew up before a whole pyramid of mammoth Saratoga trunks. Two men leaped lightly from it, one with a lamp and a bundle of jingling checks; the other pulled down with a crash a couple of portmanteaus. The sight and sound were to the sick expressman like the trumpet to a blind old war-horse. Forgetting his illness and weakness he rose, gained the heap of baggage at a bound, and seized a large Saratoga trunk which three hall porters could hardly move. Poising it in the air, he hurled the huge mass through the air as if it had been a feather. Seized with a perfect fury, he slung trunk after trunk upon the wagon; the pile melted like a platter of beefsteaks before an Indian chief; the atmosphere was perfectly black with carpet sacks, and not less than three portmanteaus were in the air at once. But the effect was too much for him, and as the last trunk was landed with such force that it burst asunder in mid air, and gushed forth socks, collar boxes, shirts, petticoats, hair-brushes and things, as if a bombshell had exploded in a hosiery shop, he fell fainting to the sidewalk. They sprinkled him with water, forced whisky down his throat, and did all that lay in human power to bring him to, but vainly. At last, when every expedient had failed, one slammed a trunk down at his ear and bellowed, "Denver!" The fainting man awoke, shouted "Show me your ticket," and was borne away by his faithful friends, who shed tears of joy at his recovery.

RAILROAD GAZETTE

Published Every Saturday.

A. N. KELLOGG & CO., *Proprietors.*

S. WRIGHT DUNNING AND M. N. FORNEY, *Editors.*

W. H. BOARDMAN, *Acting Publisher.*

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Editorial Announcements.

Correspondence.—*We cordially invite the co-operation of the railroad public in affording us the material for a thorough and worthy railroad paper. Railroad news, annual reports, notices of appointments, resignations, etc., and information concerning improvements will be gratefully received. We make it our business to inform the public concerning the progress of new lines, and are always glad to receive news of them.*

Articles.—*We desire articles relating to railroads, and, if acceptable, will pay liberally for them. Articles concerning railroad management, engineering, rolling stock and machinery, by men practically acquainted with these subjects, are especially desired.*

Inventions.—*No charge is made for publishing descriptions of what we consider important and interesting improvements in railroad machinery, rolling stock, etc.; but when engravings are necessary the inventor must supply them.*

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay.* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

CHEAP RAILROADS.

In undertaking to build cheap railroads, projectors of such lines seem to be especially prone to fall into the error of employing cheap engineers to locate them, of buying poor material to build them, and selecting low-priced men to superintend them. That such a policy is unwise when the *best* road is to be built with the *least* amount of money, is very obvious on a little reflection. The road which will cost the least for grading is the one which has the best location. The latter only a good engineer will determine. Many projectors are doubtless ignorant of the immense difference in the cost for grading which blunders in locating embankments or cuts may entail, and to such mistakes inexperienced and ignorant engineers are especially prone. We have in mind now several instances in which projectors of new lines have admitted, after their roads were graded, that had they paid a liberal price for the best procurable engineering ability, instead of attempting to economize in the cost of that item, they would have saved many times the salary of a good man.

It is not alone in the location of a road nor in the cost of grading that this is true; but it applies to every part of the construction, in the selection of a good form of rail section and rail fastening, in designing the bridges and buildings, in surfacing and draining the track, and a hundred items which none but an experienced engineer ever observes. While this is true of the construction of the road itself, it applies with still more force to the construction of rolling stock. If the *value* of the fuel which passes unconsumed out of the smoke-stacks of locomotives on account of insufficient boiler capacity could be seen as distinctly as the volumes of smoke from such engines, it would surprise the stockholders as much as the smoke annoys passengers. It is in the weight of cars, however, that incapacity will tell disastrously on the finances of cheap railroads. We believe we are correct in saying that of late years, until the narrow-gauge system was introduced, absolutely no mechanical or engineering ability of a high order—such as has been employed in the design and erection of bridges—has been employed in the construction of cars. Many skillful mechanics are engaged, we know, in that occupation; but of late they have been ambitious chiefly to produce cars with what they call a "good finish," rather than to make them of the greatest strength with the least weight. In designing and constructing bridges, the most skillful mechanics, profound mathematicians and scientific metallurgists have been exercising all their knowledge to discover the most economical and strongest form and material for that purpose. Quite curiously, too, multitudes of inventions for reducing the cost and weight of bridges—which are permanent structures—are made each year. Patents are taken out every month for improvements in their framing and connections, whereas patents for similar improvements in the construction of cars—which are moved to and fro, and transported hundreds of miles daily—are almost unknown.

Now it is absolutely necessary that rolling stock to be used on a light railroad must be *light*, and at the same time strong enough for safety. The success of such a road will be dependent upon the skill with which such cars are built, and, therefore, it is important, on having the rolling stock for a cheap railroad designed, that the person who does it should be acquainted not only with the mere mechanical construction of cars, but that he should have some scientific knowledge of the strength and strain to which materials are subjected. That such men are rare and difficult to find, is only another reason for paying them liberally for their services.

For these reasons, therefore, in building a cheap railroad the first thing to do will be to secure the services of a thoroughly competent engineer to locate the line, and have the rolling stock designed by a person with sufficient experience and skill to do it well. There are several establishments in the country where light railroad machinery of excellent design has quite recently been built, and were this the place we could name the works where such equipment has been made.

An estimate of the cost of a cheap road, such as we contemplate, can, of course, not be entirely accurate without going into details, for which there is neither time nor room in an article of this kind. There are, besides, so many varying conditions and circumstances, or—to speak algebraically—"unknown quantities," especially at the present time, when the price of material fluctuates daily, that it is difficult to do more than give the relative cost of two lines on the basis of some hypothetical prices. In our comparisons, therefore, we will not attempt to make them conform accurately to the existing condition of the markets, but as nearly as possible state the average proportion which the cost of the one road will bear to the cost of the others.

	Light 3 ft. gauge.	Light 4ft. 8½in. gauge.	Heavy 4ft. 8½in gauge.
Land and land damage	$500	$50	$75
Grading, embankments for light roads 10 ft. wide, and cuts 12, for heavy road 2 ft. wider, with an average height of, say, 6 ft. for embankments and cuts	3,500	3,500	3,850
39¼ tons rails, 25 lbs. per yard, at $84.75	3,326	3,326	....
88 tons rails, 56 lbs. per yard, at $79.10	....	....	6,96
585 pairs fish plates, 2,925 lbs., at 5 cts.	146	146	....
2,340 bolts and nuts, 780 lbs., at 7 cts.	55	5	....
1,750 lbs. spikes, 4x⅜, at 6 cts.	105	105	....
440 pairs fish plates, 7,040 lbs., at 4¾ cts	....	....	33
1,760 bolts and nuts, 1,760 lbs., at 6¾ cts.	....	....	11
5,000 lbs. spikes, 5½x9 16, at 5½ cts.	....	....	27
3,520 ties, 4½x4½x6 ft., at 35 cts.	1,232	1,232	....
2,640 ties, 6x6, at 50 cts.	....	....	1,32
2,400 cubic yards ballast, at 50 cts.	....	....	1,2
Laying track	300	300	45
Sidings	300	300	60
Bridges	1,000	1,000	1,50
Masonry	500	500	75
Fencing	500	500	50
Freight on materials	150	150	25
Freight and passenger houses	600	600	1,00
Engine houses, repair shops and water works	400	400	80
Miscellaneous buildings	100	100	15
Engineering, salaries and office expenses	1,000	1,000	1,00
Road per mile	$13,714	$13,714	$21,80
Equipment, for say 25 miles of road.			
5 locomotives	30,000	30,000	62,50
10 passenger cars	27,500	27,750	50,00
4 mail and baggage cars	2,400	2,500	9,00
50 eight-wheeled box cars	17,500	18,750	40,00
50 eight-wheeled platform cars	15,000	16,250	30,00
	92,400	95,250	191,50
Equipment per mile	$3,696	$3,810	$7,66
Total road and equipment per mile	$17,410	$17,524	$29,49

It will be seen that the difference between the ligh narrow and standard-gauge road is only $112 per mile, which is due almost entirely to the increased cost o cars. In some previous estimates which were publishe in the RAILROAD GAZETTE, we calculated that there would be a difference of about 6 per cent. in the cost o grading, due to the difference in the width of embankments. Later and more careful investigation has induced us to believe that it is not requisite to make cuts any wider for a road of one gauge than for the other, and therefore that there would be no difference in the cost o grading. A car of a given weight would have just as much stability on a six-feet tie with a 4 ft. 8½ in. as with a 3-feet gauge. It might be thought that neither would be secure enough, and therefore the ties should be 7 fee long, as represented in fig. 5, published in last week's paper. If the embankments were widened for this reason, it would of course add somewhat to the cost of grading.

We wish to state as distinctly as possible that the capacity of neither the narrow-gauge nor the light standard-gauge is as great as that of the heavy road. The same is true of the speed at which they can be advantageously operated. Both the carrying capacity and speed of the light roads is only about one-half of that of the heavy road, and in suggesting the construction of light roads we by no means propose to substitute them for long lines which carry a heavy traffic. They are adapted only for lines with a light business, to be carried at a slow speed at little cost. The great advantage which light roads built of the standard gauge have over narrow roads is that their capacity is capable of an easy and gradual development without any interruption to their business or any sudden expenditure of large amounts of money. There are comparatively few localities, in *this* country at least, where if a road is built the traffic will not begin at once and continue to increase. If a road is built in such a location, its value must be very much greater if it could at any time be gradually put into condition to do a heavy business. The market value of a narrow-gauge road, we believe, would always be very much less if it were offered for sale than that of a road of the standard gauge of the same capacity and cost. In these days, when so many roads are built to be sold, it becomes projectors of such lines to give due weight to the influence which the gauge will have on their value after they are completed.

The idea of building railroads with a light substruction and equipment for the first construction, and depending upon the receipts from traffic for their improvement, is not a new one. Nearly every road in the Western country was built to a greater or less extent in this way. In the suggestions which we have made, we have only carried this idea a little farther than has hitherto been the practice, and propose that the rolling stock and roadway shall be especially and skillfully designed for each other.

Quite near New York is a road now in operation which comes very near to what we propose. We refer to the East New York & Canarsie Railroad, which runs from East New York to Canarsie, a distance of four or five miles. The road was originally laid with rails weighing 40 lbs. per yard, which are now being replaced with 45 and 50 lb. iron. One of the curves is of only 120 *feet radius* and about 90 *deg. of curvature.* The engines weigh about 30,000 lbs., have four 4-feet driving wheels with a single pair of truck wheels at each end and a tank on the top. The distance between the driving-wheel centers is 6ft. 6in., and the total wheel base is 18ft. 6in. They run equally well either way and are never turned around. The fuel used is anthracite coal. One man acts both as locomotive runner and fireman, which probably would be impracticable on a longer line. The travel over the road is chiefly in summer for pleasure; and on Sundays, trains of 13 cars, carrying 1,000 passengers, have been taken over the road, and around the curve of 120 feet radius. The cars run, of course, very much crowded, but some of them will seat 80 passengers each. The first that were used were built similar to horse cars, with long bodies and eight wheels. Since then light cars made especially for the purpose have been placed upon the road. None of these are designed with any especial skill, and there is room for improvement in all of them. The engines were made at the Grant Locomotive Works, and are very highly spoken of by the proprietor of the road, Mr. P. H. Reid. We have referred to this road because it is easy of access from New York—street cars from both Fulton and South Ferry run directly to the terminus of the road—and it can be examined at any time by those interested. We do not refer to it as a model road, because it is not; but it is an example of the principle we are advocating.

We also had an opportunity a few weeks since of examining the records of the Hanover Branch Railroad, which was built about twenty years ago from Hanover, Pa., to connect with the Northern Central Railroad a few miles north of the Maryland line. The contract for construction of this road specifies that the cuts shall be 14 feet and the embankments 12 feet wide; the cross ties 8 feet long, 6 inches thick and 6 inches face; the rails 43 lbs. per yard, spikes 5½x½in.; maximum grade 60 feet per mile. The length of road is 12½ miles. The first engines on the road weighed from 19 to 20 tons.

The road was and is still equipped with the ordinary cars of the Northern Central Railroad, with the exception of those for passengers. None of them, however, were designed or built expressly for light traffic. The old rails are now being replaced with 50 and 56 lb. iron, and engines of 24 to 26 tons weight are used. In the GAZETTE of June 1 we gave a brief account of the financial condition of the road and the operations of the fiscal year, in which it was stated that "a 10 per cent. divi-

dend was made, half as much was expended for new construction, rolling stock and other additions to the property, and an investment equal to about 20 per cent. was made in the stock and bonds of connecting railroads, though part of this came from a previous year's balance."

There is nothing at all remarkable about this road excepting its very economical management—we refer to it only as an example, of which many can be found, of roads built on the principle we are advocating, and from that developed into roads of greater capacity. The Hanover Branch is very far from being a model road, but if a line which, so far as its mechanical and engineering departments are concerned, has been somewhat unskillfully conducted, can be made as successful as it has been, it indicates that with the improvements which have been made in the construction of all kinds of railroad equipment, and by the exercise of greater skill, even better results are possible from the use of the light system.

In view of the fact that so many roads in this country have been built originally in this way, it seems extraordinary that the system has not been brought to greater perfection. The improved forms of rail sections, locomotives, cars, etc., and the skill which 20 or 25 years of experience has given us would now give roads of that kind advantages which could not then and thus far have not been fully realized. It is the confidence in a light system of railroads for light traffic that has given the stability to the narrow-gauge system, all the merit of which is due to its lightness and not its narrowness; and it is because we believe that all the advantages which can be gained by the construction of roads of that kind can be realized to the same extent with light standard-gauge lines that we have opposed the construction of the form r and favor the latter system.

FREE PASSES TO RAILROAD MEN.

A correspondent in another column argues in favor of maintaining the free-pass practice, so far at least as regards the employees of railroad companies. In doing this he reveals one of the greatest obstacles to the abolishment of the practice. It is common to suppose that the influences on the railroads are entirely unfavorable to granting passes, and that the practice is sustained wholly or chiefly by outside pressure, such as is exerted by journalists and politicians. Doubtless this outside pressure, now that the practice has become established and almost universal, counts for something; but as much at least as to anything else the existence and maintenance of the custom is due to the favor with which it is regarded by two classes of the servants of railroad companies, those who receive and those who *give* passes—the former, of course, including the latter.

That any class who possess privileges not accorded to the rest of mankind should be loth to part with them is by no means strange, and, as we shall try to explain further on, it is by no means unreasonable; but that those officers who have authority to grant passes, and who are expected to, and usually do, have the interests of their companies always in view, should cling to the custom, is not quite so easily understood. It is explainable, however, and, indeed, is not at all mysterious.

In the first place—and this may be said of all parties concerned—people resist a change because it is a change. When a custom has existed so long and affects closely so many thousands of people, all other customs, habits and practices are affected by it, and a change really does injury, for the time, to many. As it is now, free passes are a part of the machinery with which railroad business is done; one of the considerations in certain employments, and a very general and openly-considered consideration in many contracts. A great many railroad men would hardly know how to do their work without passes. They are tools to which they and those with whom they deal are accustomed, and they hardly know where to find a substitute, and would probably be awkward in using it, if they did. Some men have become very skillful in the use of passes, obtaining by them services of great value to their companies, and securing traffic which otherwise would be diverted, and these men are very unwilling to give up the weapons they handle skillfully for others, though more legitimate, to which they are unaccustomed, and in the use of which they would be, as it were, apprentices.

But there is another reason why railroad officers may value their authority to grant passes, and this is because no power which they exercise gives them so much consideration. The man who has favors to grant becomes at once a person to be courted and held in esteem. Hundreds of railroad officers will remember the sudden change in the manners of people toward them when first they acceded to positions in which they had power to grant passes. It was not simply or chiefly that old companions became more obsequious and respectful, but that the multitude theretofore not knowing and not caring for him suddenly took pains to make his acquaintance, establish their claims on the railroad companies and cultivate his favor. Doubtless much of this was done in such a way as to disgust the new officer; but much of it was not. He had suddenly become the agent through whom they were to receive what common custom had led them to consider their legitimate privileges, and they cultivated him as one with whom they must have frequent dealings and who was not bound to give what was properly their due; much as—to put it rather offensively—one cultivates the waiter at a hotel, whose business it is to serve you, but who may serve you well and may serve you ill, and is much more likely to serve you well if you treat him well—and liberally.

This consideration, which is likely to be very attractive to young officers and those in the less responsible positions, doubtless has few charms to the more important officers, whose authority in other directions gains them abundant respect, and who are assailed and worried almost constantly by swarms of those who would ride but not pay, including many of the most worthless and despicable of humanity. These quite generally, we believe, would welcome a change which would relieve them entirely of the responsibility of granting passes, or at least make such passes a definite consideration for services, etc., something due to the recipient on demand and not to be granted or withheld at pleasure.

The argument of railroad employees is, that a pass costs the company little or nothing, may be very valuable to the recipient, and is likely to make him more devoted to the interests of the corporation he serves. Now all this is plausible, and probably the practice is less objectionable in connection with employees than otherwise. But railroad men—and others—may be sure of one thing: *that in the long run whatever favor or privilege is attached to their employment becomes an element in fixing their money wages.* There is nothing surer than this. If I am offered employment where the scenery is beautiful and the climate healthful and delightful, I take these attractions into consideration, and work for less pay in money than I would in a desolate wilderness under a tropical sun or among polar frosts. And if I am asked to work where my children must pay ten cents each daily for car fare on their way to and from school, I want higher pay than where I can live close to the school-house. If, generally, an employment is open to me in which I and my family will have the privilege of traveling free, I am sure to work cheaper in that employment than in another in which I would have neither that nor any compensating privilege. I must do it; if this occupation has attractions above any other of the same grade it will inevitably attract so many to it that the wages will be lowered to balance the other advantages and privileges. There is no principle of political economy more clearly fixed than that, in the long run, we must pay for what we get, whether wages or privileges. If railroad companies did not give passes to their employees we believe that they would be compelled to pay them better wages, simply because one of the attractions of the occupation would be gone, and it would have to be made up in some way, else the ranks of the employees could not be kept full.

This being the case, it may be asked why the railroad companies should abolish a custom which enables them to pay in services instead of money. We answer, because indirect payments of this kind are always irregular, unjust and excessively large in amount, while comparatively of little value to those who receive them. One man may serve faithfully for many years and never receive a pass because he has no use for one. Another, less faithful and less deserving, may travel on passes frequently when he actually saves money by it—that is, when he would have traveled even if he had had to pay for his tickets. Now, evidently, if both of these men deserve more than the company has paid them, only one gets it. That is, the extra pay which the privilege of riding free represents is given to one man and withheld from the other. To do justice, the men must be paid—or rewarded, or favored, if you prefer to put it so—in a currency which they all can use, not in passes "not transferable," worth just so much money to one and nothing at all to the other. If a company has favors or rewards to bestow, it should bestow them according to service and merit, and not to those only who chance to want to ride. Engineman Smith may want to send his wife to New England, and to him a pass is as good as money; but Engineman Brown may want to buy a cow, and not to travel, and he would much rather have a little money.

That it costs a railroad company nothing to pass an employee, is another fallacy. It costs just as much as it does to carry any one else. It is true that the addition of one to a train-load, if there is room in the cars, will hardly affect the cost of running the train. But it makes no difference whether that additional one is a railroad employee or an ordinary traveler. In every train, almost, several additional passengers could be carried without appreciable increase in cost, and if they were selected from those who otherwise would not travel, without any decrease in the company's expenses; and, doubtless, the favor of all those so carried would be secured. But there is absolutely no difference in these respects, whatever the occupations of the travelers. On the average it costs a certain amount to carry a passenger, and in order to earn an income it is necessary to charge a certain amount for the service.

There is, we suppose, no doubt that a great many railroad employees feel, and will continue to feel, that it costs a company nothing to give passes, and that such favors are a clear addition to their pay, and, more than all, that to refuse passes is evidence of meanness in a corporation. This, we believe, is the most formidable of all obstacles to the abolishment of the system. It may be said that all this is mere sentiment and prejudice: we believe it is; but sentiments and prejudices are very real things, hard facts that we must take into consideration, and it is of the utmost importance not only that railroad employees should be treated justly and liberally, but that they should feel that they are so treated. They will be but indifferent servants of a corporation which they do not respect. Any change which shall limit or cut off privileges which they have enjoyed should be accompanied by something which will not only give them an equivalent, but indicate that the corporations value and wish to secure the respect and devotion of their employees.

Railroad Earnings.

It is pretty late to give July earnings, but some of the companies have been unusually slow in reporting, and we are anxious to give no estimates and to make the list complete of the companies which report at all, especially as we give the earnings of each company separately as fast as they appear. We have, too, taken great pains to make the comparisons valuable by giving the mileage for each year, and also *the earnings per mile*, which of course is the best index to the comparative traffic of different companies, and also of the comparative traffic of the two years. This is of great importance in this country, where some companies work a much greater mileage than last year. It is no index to the prosperity of a railroad to exhibit an increase or decrease in earnings unless we know whether the property making these earnings was the same in both years.

The following list gives the returns of twenty-two railroad companies for the month of July—a larger number than have hitherto reported:

RAILROAD EARNINGS, JULY, 1872.

Name of Road.	Mileage. 1872.	Mileage. 1871.	Increase. Miles	Increase. P. c.	Earnings. 1872.	Earnings. 1871.	Increase.	Decrease.	Per cent.	Earnings per Mile. 1872.	Earnings per Mile. 1871.
Atlantic & Great Western	539	506	33	6½	$417,903	$374,233	$43,670		12½	$775	$740
Burlington, Cedar Rapids & Minnesota	161	162	99	61	73,838	90,053	43,840		14⅝	963	1,980
Central Pacific	1,166	989	177	18	1,175,305	869,277	305,998		35⅓	1,008	879
Chicago & Alton	650	511	139	27¼	482,967	533,655		50,668	9½	743	1,044
Cleveland, Col., Cin. & Indianapolis	470	390	80	20	330,970	319,099	11,901		3½	704	810
Erie	971	956	15	1½	1,560,023	1,730,078		170,065	9¾	1,599	1,799
Hannibal & St. Joseph	277	277			172,357	226,199		53,842	23¾	622	853
Illinois Central	1,109	1,109			616,640	707,992		91,352	12¾	556	638
Indianapolis, Bloomington & Western	212	212			110,460	77,975	32,485		39¾	470	366
Kansas Pacific	673	673			321,774	292,723	29,051		13⅝	470	431
Lake Shore & Michigan Southern	1,096	1,038	58	5½	1,204,443	1,130,947	73,496		6½	1,099	1,089
Milwaukee & St. Paul	1,121	1,018	103	10¼	486,349	481,113	5,236		1⅛	434	472
Marietta & Cincinnati	284	284			140,550	119,826	20,724		24⅝	495	422
Missouri, Kansas & Texas	549	447	101	22¾	179,504	73,233	106,270		145⅝	327	164
Pacific, of Missouri	471	335	136	33¾	265,406	287,540		22,134	7⅝	564	858
St. Louis & Iron Mountain	246	210	36	18	181,341	118,016	63,324		53⅝	737	562
St. Louis, Kansas City & Northern	583	583			297,923	294,694	3,229		1⅛	494	351
St. Louis, Alton & Terre Haute	299	306			130,145	153,571		23,426	15¼	480	577
Toledo, Peoria & Warsaw	257	247	10	4¼	90,071	93,367		3,296	3½	628	611
Toledo, Wabash & Western	628	628			432,056	553,994		121,938	22	688	882
Atlantic & Pacific	393	393			85,306	76,290	9,016		12	960	946
Ohio & Mississippi	393	393			222,049	164,961	59,121		34⅝	565	419
Total	12,530	11,545	987	8½	$8,959,356	$8,628,396	$877,489	$546,371	3⅝	$715	$747
Total increase							331,118				

The increase in July was less than for any previous month of the year, being 3½ per cent., while the increase of mileage worked was 8 9-16 per cent. The earnings per mile, we see, *decreased* from $747 in 1871 to $715 in 1872, a falling off of about 4½ per cent. The earnings, however, are absolutely large, July being one of the best months for traffic, and the roads reporting including many with much more than the average business.

We invite especial attention to the columns headed "earnings per mile." The most notable thing about them is the great differences on different railroads, varying for the current year from $260 on the Atlantic & Pacific to $1,596 on the Erie. The roads which show the largest increase in earnings are the Burlington, Cedar Rapids & Minnesota, the Central Pacific, the Indianapolis, Bloomington & Western, the Marietta & Cincinnati, the Missouri, Kansas & Texas, the St. Louis & Iron Mountain, the St. Louis, Kansas City & Northern and the Ohio & Mississippi. Four of these have also a large increase in mileage, and all except the Central Pacific and St. Louis & Iron Mountain are still below the average. The large percentages of increase per mile are made chiefly by the newer roads, which last year had hardly begun to develop their traffic, and which have still very light receipts. The Burlington, Cedar Rapids & Minnesota, for instance, shows an increase of 146 per cent. in gross earnings, and of 58 per cent. in earnings per mile, yet the latter are still only $283—about two-fifths of the average. The large decreases are in the case of the Hannibal & St. Joseph, 27 per cent., and the Toledo, Wabash & Western, 22 per cent., while several roads which show only a small decrease, or even an increase, in gross earnings show a considerable decrease in earnings per mile, as the Chicago & Alton, nearly 30 per cent.; the Pacific of Missouri, 30 per cent.

For the seven months ending with July we have the reports of nineteen railroads, including the above except the Burlington, Cedar Rapids & Minnesota, the Atlantic & Pacific, and the Ohio & Mississippi. These roads had an aggregate length of 11,314 miles in 1872 and 10,593 in 1871, the increase being 721 miles, or 6.8 per cent. The aggregate earnings were $58,227,309 in 1872 and $51,519,522 in 1871, the increase being $7,450,312, or 13 per cent. The average earnings per mile of these roads was $5,147 in 1872 and $4,864 in 1871, showing an increase of $283, or a little less than 6 per cent. This is a favorable showing, the earnings being at the rate of $8,820 per mile per year. The lowest earnings are those of the Missouri, Kansas & Texas, $1,868 per mile, which yet has nearly the largest percentage of increase—45 per cent. Several of the roads with very small earnings are such as are yet unfinished, and cannot be expected to have much traffic for a little time.

THE NATIONAL RAILWAY COMPANY, which claims to have authority to construct a new railroad from New York to Philadelphia, and, worse than that, to be able and ready to complete it within fourteen months, has been called upon to give an excuse for its existence—or rather to prove that it has a legal existence—before Judge Sharswood, of the Supreme Court, in Philadelphia, this week. The company presented affidavits from the Engrossing Clerk of the New Jersey Assembly, the Private Secretary of the Governor, the Acting Secretary of State and the Secretary of the Senate to show that the charter of the Stanhope Railroad Company passed the New Jersey Legislature in due form as it now exists, with the monstrous clause permitting the completion of a new line between Jersey City and Philadelphia.

Judge Sharswood suggested that if he were to grant the injunction asked to prohibit the collection of installments of stock, the negotiations of bonds, etc., by the National Company, the parties would probably not get a final decree (after appeal) before next February or March, whereas if the decree should be granted *pro forma* now, the case could be finally settled by the first or second week of October. On consultation, both parties agreed to this. The temporary injunction does not prohibit the work of construction in New Jersey, which is said to be going on with a force of 700 men.

FREIGHT RATES WESTWARD, which were reduced to exceptionally low figures about the 1st of August, were raised on the 1st inst. The changes are shown below:

First class.	New tariff per cwt.	Old rates.	*First class.*	New tariff per cwt.	Old rates.
To Chicago, Ill.....	$1 00	$0 75	To Memphis, Tenn...	$1 52	$1 14
To Milwaukee, Wis..	1 00	75	To Nashville, Tenn...	1 33	1 01
To Gr'd Rapids, Mich.	1 00	75	To Louisville, Ky....	1 13	86
To Detroit, Mich.....	70	53	To Cincinnati, Ohio..	92	70
To Leavenworth, Kan	1 70	1 39	To Columbus, Ohio...	80	60
To St. Joseph Mo....	1 70	1 39	To Cleveland, Ohio...	65	49
To Kansas City, Mo..	1 70	1 39	To Dunkirk, N. Y....	55	49
To Cairo, Ill.....	1 28	96	To Suspension Bridge	70	55
To St. Louis, Mo.....	1 28	97	To Buffalo.....	70	55

These rates are still low, but low rates are probably most profitable at this season on west-bound traffic, as there is a vast amount of traffic moving eastward, and most cars must be hauled back empty unless coarse and low-priced freight can be secured, which can be done only by very low rates.

Though the August rates were very low, they at no time reached the absurd rates of last year, which, moreover, lasted for several months and covered most of the time when the movement westward is heaviest and the demand for transportation imperative. As the traffic is larger than ever, there seems good reason why the trunk lines should make a considerable increase in earnings.

MASTER MECHANICS, at least those belonging to the Master Mechanics' Association, are requested by the Secretary, Mr. Setchel, in a letter which appears in another column, to send their post office addresses to him at Cincinnati. It is impossible for the committees to do the work preliminary to making their reports—the collection of information from all the members of the Association—unless their circulars of inquiry are addressed to the members properly; and all records are more or less imperfect. Early attention to Mr. Setchel's request will assist materially the work of the Association for the next convention.

THE GENERAL TICKET AGENTS' ASSOCIATION will hold its semi-annual convention at the St. Nicholas Hotel, New York, beginning Friday, September 20, 1872, at 11 a. m.

—Col. W. D. Mann, of Mobile, Vice-President of the Mobile & Northwestern Railroad Company, sailed for Europe on business connected with his company August 31.

General Railroad News.

CHICAGO RAILROAD NEWS.

Freight Rates.

On Monday, the 2d inst., the freight rates were changed both to and from this city and New York, Boston and other eastern cities. The rates now from New York to this city are: First-class, $1.00; second, 90 cents; third, 70 cents; fourth, 55 cents, and special, 45 cents. Rates to New York from this city are: first-class, $1.60; second, $1.25; third, 85 cents; fourth, 50 cents.

Chicago, Burlington & Quincy.

The business of this road was never so good, for the time of year, as it is now. The earnings for August of this year exceed those of August last year by $75,000. On the 20th of August the company transported 883 loaded cars both ways, and for several days in the month over 800 loaded cars were moved over the road. The business for the month of August has been unprecedented.

The President of the company is expected home on Monday, the 9th inst.

Personal.

Mr. Hopkins, Second Vice-President of the Illinois Central Railroad Company, has established his office in this city. He entered upon the discharge of his duties on the 2d.

Chicago, Rock Island & Pacific.

This company reports its freight earnings for the past month to be largely increased. The great passenger depot is nearly ready for the roof. It is a very much finer building than the one which was destroyed by the fire.

The Horse Cars.

The long-talked-of project of running West-side horse cars from the West Division to Twenty-second street was put into force on Saturday, August 31. The cars run from Twenty-second street to Union Park for a single fare. This is nearly four miles. The cars are filled almost at the very starting points, and the new line promises to be a very popular one.

Chicago, Danville & Vincennes.

This company is agitating the question of leasing one or two other lines, but the matter has not yet assumed such shape as to warrant its being made public. This road is transporting large quantities of block coal to Chicago, and is soon to develop itself as a first-class road.

Baltimore & Ohio.

This company has at last settled the location of its line into this city. The track is to cross the Michigan Southern at Millersburg, about 18 miles from Chicago. From that point it will run as close to the beach as is practicable. In fact, in two or three places breakwaters will have to be built to protect the track. A short distance south of the lower South Park it will diverge northwestward so as to strike the Illinois Central track exactly west of the southwest corner of the lower park. The people of Chicago, particularly the real estate owners, have been for some time anxious to know where the track was to be.

Viaducts.

The citizens have begun to agitate the question of viaducts over the Chicago, Burlington & Quincy railroad tracks, where they cross the main north and south thoroughfares, or else having the track sunk below the grade, as was suggested some time since, and it is quite probable that something will be done to lessen the danger that now exists at the crossings.

Chicago & Northwestern.

Engineers are surveying a route through the city of La Crosse to the spot where the bridge across the Mississippi has been located. It is proposed to build a tunnel about 1,500 feet long through a portion of the city.

The Escanaba (Mich.) *Tribune* says that on the extension from Menomonee to Escanaba some five miles of track is laid north from Menomonee, and track laying is going on at a fair rate. On the Escanaba end considerable work has been done on the first ten miles of grading, but there are some low marshes on the line which will require a great deal of filling in. The company hopes to have cars running to Escanaba by January next.

Continental.

An engineer reports that this road is now under construction between Tiffin, O., and the Indiana State line, and between Rochester and Rensselaer, Ind. It is expected that the entire grading between Tiffin and Chicago will be finished by February, 1873, with a double track. From Tiffin east to Akron, Ohio, surveys have been ordered to be made, and are now supposed to be going on, so that by February next the grading will be so far advanced that by July following there will be a new connection between Chicago and New York *via* the Atlantic & Great Western and the Erie, which are to have a third rail. And the projectors of the road hope to be able to have the entire track laid through Pennsylvania by December, 1873. The principal officers of the company were all in Chicago a few days since, and these statements are given from information received from one of the party.

The offices of the company are at No. 20 Nassau street, New York.

ELECTIONS AND APPOINTMENTS.

—Joseph Angell, formerly connected with the Erie Railway telegraph lines, has been appointed Superintendent of Telegraph of the New York & Oswego Midland road.

—Mr. C. W. Douglas, for many years Superintendent of the South Side Railroad of Long Island, has accepted an appointment to a similar position on the New York & Oswego Midland Railroad.

—At the annual meeting of the stockholders of the Middletown & Crawford Railroad Company, at Middletown, N. Y., August 27, the following officers were re-elected: D. Thompson, President; E. M. Madden, Vice-President; I. P. Madden, Secretary; C. H. Horton, Treasurer.

—The board of directors of the new Marquette, Houghton & Ontonagon Railroad Company, formed by the consolidation of the Houghton & Ontonagon and the Marquette & Ontonagon companies, is composed of the following gentlemen: H. N. Walker, S. L. Smith, Charles H. Palmer, George Jerome and S. P. Ely, Michigan; Moses Taylor and John Steward, of New York; Charles Francis Adams, Jr., and Alexander Agassiz, of Boston. At the first meeting of the board, H. N. Walker was chosen President; S. P. Ely, Vice-President; Moses Taylor, Treasurer, and Freeman Norvell, of Detroit, Secretary.

—The stockholders of the Columbus & Northwestern Railroad Company, at a meeting at Lima, Ohio, August 30, chose the following board of directors: C. M. Hughes, P. B. Johnson, E. Sanford, N. Tucker, J. B. Roberts, R. T. Hughes and Theo. Mayo. At a meeting of the directors held immediately afterward, C. M. Hughes was chosen President; P. B. Johnson, Vice-President; N. Tucker, Secretary and Treasurer; Theodore Mayo, Superintendent; E. Sanford, Auditor; P. Golay, late of the Shore Line road, Engineer.

—Mr. J. L. Wilson, for many years Master of Transportation of the Baltimore & Ohio Railroad, has resigned, and the place has been filled by the appointment of William Prescott Smith, for many years in charge of the New York & Washington passenger route, but formerly in the service of the Baltimore & Ohio.

—Mr. John E. Toole, Assistant Master of Transportation of the Baltimore & Ohio Railroad, has resigned, and is succeeded by Thomas R. Sharp, for a few months past Superintendent of the Jersey Southern, and formerly of a Southern railroad.

—At the annual meeting of the stockholders of the Monticello & Port Jervis Railway Co., Sept. 3, the following officers were elected: President, S. O. Dominick; Vice-President, T. A. Nevin; Secretary, Frank Marvin; Treasurer, George Malvern.

—Mr. Charles W. Douglas, for many years Superintendent of the South Side Railroad of Long Island, in which position he has made a reputation as a careful and capable officer, has accepted an appointment as General Superintendent of the New York & Oswego Midland Railroad, and entered upon the discharge of his duties on the 4th inst., having charge of the lines operated from Jersey City northward.

TRAFFIC AND EARNINGS.

—The earnings of the St. Louis & Iron Mountain Railroad for the third week in August were: 1872, $47,390; 1871, $32,038; increase, $15,352, or 48 per cent.

—The earnings of the St. Louis, Kansas City & Northern Railway for the month of August were: 1872, $336,536; 1871, $236,586; increase, $99,950, or 42¼ per cent.

—The earnings of the Burlington, Cedar Rapids & Minnesota Railroad for the week ending August 21 were: 1872, $26,929; 1871, $15,657; increase, $11,272, or 72 per cent.

—The earnings of the Kansas Pacific Railway for the third week in August were: from passengers, $26,428.25; from freight, $58,179.99; from mails, $1,400; total, $80,008.24. Of this amount, $2,578.63 was for transportation of troops and government freight.

—The earnings of the Great Western Railway of Canada for the week ending August 16 were: 1872, £19,172; 1871, £18,897; increase, £275, or 1½ per cent.

—The earnings of the Grand Trunk Railway for the week ending August 17 were: 1872, £35,900; 1871, £34,200; increase, £1,700, or 5 per cent.

—The earnings of the St. Louis & Southeastern Railway (the consolidated line) for the first week in August were $20,318; second week in August the earnings were $20,162; and for the third week, $25,200.

PERSONAL.

—Mr. George W. Phelps has resigned his position as Superintendent of the Connecticut Western Railroad.

—H. C. Lett, President of the Brownsville, Fort Kearney & Pacific Railroad Company, has been nominated for Governor of Nebraska by the Liberal party.

—Many of our readers will be pained to hear of the death of Mr. M. O. Davidson, C. E., who died at his residence in Fordham on Sunday, the 1st inst. Mr. Davidson was a native of Plattsburg, N. Y., and in the early part of his professional career was engaged on the Erie Railroad and for six years on the Croton Aqueduct. On its completion he was placed in charge of the Cumberland Railroad & Mining Co.'s works in Maryland, where he was employed for five years. He then went to Cuba and for six years was the Chief Engineer of the Havana Railroad. He resigned his position there in 1863, and since then has been employed as engineer of silver mines in Arizona and on the New Haven & Derby Railroad, the New York, Utica & Ogdensburg Railroad, and more recently on the new avenues and boulevards in Westchester County, New York. He was a member of the American Society of Civil Engineers, a man of untiring energy, always hopeful, a warm and devoted friend; and by none, excepting his own family, will his loss be mourned more than by his old assistants.

—Mr. Abraham Firth, Assistant Superintendent of the Boston & Albany Railroad, and for twenty years in the service of that corporation or of those from which it was formed, has offered his resignation, to take effect October 1. The Boston *Advertiser* says of him: "Few men who have had supervision of railway travel for so long a time have exercised it with more scrupulous fidelity, or have won so largely the esteem and confidence of the traveling public." Mr. Firth is the father of the late F. R. Firth.

OLD AND NEW ROADS.

Cincinnati, Richmond & Fort Wayne.

This company is offering its first-mortgage 7 per cent gold bonds at the rate of $20,000 per mile, having 50 years to run, at 92½. They are guaranteed by the Cincinnati, Hamilton & Dayton and the Grand Rapids & Indiana railroad companies, and by the Pennsylvania Company. The road is worked in connection with the Cincinnati, Hamilton & Dayton and the Grand Rapids & Indiana as part of a through line from Cincinnati northward, and is well adapted for carrying Michigan lumber southward. The whole amount of the loan is $1,800,000. The road has been in operation since last fall, but no reports of earnings have been made as yet. The Grand Rapids & Indiana Company works it under a lease for 99 years, supplying all the rolling stock.

Vicksburg & Brunswick.

This company, which has 21 miles of road in operation from Eufaula west to Clayton, Ala., advertises for proposals for constructing and furnishing material for the extension of the road westward toward Meridian, Mississippi, payments to be made in the company's 8 per cent. first mortgage bonds, indorsed by the State of Alabama. Bids may be made for the whole or any part of the line. They may be addressed until October 7 to J. M. Macon, the Secretary and Treasurer, at Eufaula, Ala. The length of the line from Clayton to Meridian is 204 miles. The country on the line is mostly pine woods with a light and easily worked soil, and the work of construction will probably be comparatively easy.

Syracuse, Binghamton & New York.

This company, whose road is leased and worked by the Delaware, Lackawanna & Western Company, has declared a cash dividend of 4 per cent.—the first in the history of the road, we believe. It has also declared a stock dividend of 20 per cent., which increases the amount from $1,670,130 to $2,004,156, which is nearly at the rate of $25,000 per mile. The bonded debt is $1,670,000, or about $20,000 per mile.

Rockford, Rock Island & St. Louis.

The annual meeting of the company will be held in Rock Island, Ill., at noon on October 9.

St. Louis, Salem & Little Rock.

This company has been organized in the interest of capitalists who own large iron-ore fields in Crawford, Phelps and Dent counties, Mo. The line is from Cuba, a station on the Atlantic & Pacific Railroad, 91 miles southwest of St. Louis, nearly due south a distance of 40½ miles to Simmons' Iron Mountain, near

Salem, the county seat of Dent County. The estimated cost is about $1,400,000. About one-half of the line is in a valley through farming lands, and the other half on a ridge. Iron ore is first reached 12 miles south of Cuba, and 30 miles south of the same place another bank is reached, and a short spur will connect with a third; the fourth is at the southern terminus, and is said to be enormous in extent; and a branch 2½ miles long is to connect with a fifth, said to be of superior quality. The ores are hæmatites, and are said to be of superior quality for Bessemer steel. Mr. A. L. Crawford, of New Castle, Pa., is President, and Mr. William L. Scott, of Erie, Pa., is a director. The Secretary, Mr. William Brewster, of Erie, informs us that the company now has 20 miles of the line under construction, and will have the other 20 under way by October; that the iron has been purchased and is to be delivered and laid by June, 1873.

Great Western of Canada.

The company is laying track rapidly on the air line, from Glencoe eastward.

Indianapolis, Bloomington & Western.

The new extension, which is really a branch, is formed out of the lines of the Monticello Railroad and the Havana, Mason, Lincoln & Eastern. The Monticello road was graded some years ago, and has recently been completed and put in operation from Urbana west by south to Monticello, Ill., a distance of 21 miles. The main line now under construction is to diverge from this road at White Heath, a pont 13 miles west of Urbana, and extend thence nearly due west through Clinton to Lincoln; thence a little north by west through Mason City to Havana, and thence west to Warsaw, Ill., opposite Alexandria, Mo. It is intended to complete the Monticello road southwest to Decatur as a branch of this road.

Hannibal & St. Joseph.

One of the engineers engaged on the new "Atchison Branch" of this road writes us that it will be completed by November, and be first class in every respect. It extends from St. Joseph southwest down the east bank of the Missouri parallel to the Kansas City, St. Joseph & Council Bluffs road to a point opposite Atchison, 20 miles. General J. W. Singleton is the principal contractor, and he has a large force grading.

Flint & Pere Marquette.

The Flint River branch is now completed from Flint to Otisville, and tracklaying is being pushed forward to Otter Lake, four miles beyond Otisville. The road is now being ballasted and fenced.

Continental.

The Tiffin (Ohio) *Tribune* says that the contractors on this road for 85 miles west of Tiffin received orders, August 19, to sub-let the grading at once and have the work begun without delay, the road to be ready for the iron in 90 days. Most of the work has been sub-let accordingly.

Cleveland, Ottawa & St. Louis.

The certificate of incorporation of this company was filed with the Secretary of State of Ohio August 28. The road is to run from Cleveland, through the counties of Lorain, Huron, Seneca and Hancock, to Ottawa, in Putnam County, a distance of about 125 miles. The capital stock is $2,000,000, and the corporators are A. V. Rice, C. M. Godfrey, N. H. McCracken, Stansburry Sutton, J. P. Simon, W. W. Kelly, S. B. Rice, S. Slauson, J. L. Olney. The road would run southwest some 30 miles from Cleveland, thence nearly due west.

Atlantic & Pacific.

A San Francisco telegram of August 29 says that the subscriptions to the capital stock of this company amount to $1,628,300, from 2,153 subscribers. A petition to the Board of Supervisors, to submit to the people, at the next election, an ordinance authorizing a municipal subscription of $10,000,000 to the company's stock has received already the signatures of 8,000 citizens, or about one-third of the voters of the city, and new signatures are still being obtained. The Committee of One Hundred, by a vote of 38 to 34, has carried the proposition to compromise with the Central Pacific Company on their agreement to abandon the Goat Island scheme. The Committee also adjourned *sine die* by the same vote, but it is thought that this action will have very little effect on the Atlantic & Pacific project.

St. Louis, Hannibal & Keokuk.

A company, organized in Cedar Rapids, Iowa, last spring, and known as the Missouri & Iowa Railway Construction Company, has purchased this partly finished road and is pushing the work on it rapidly. A force of 500 men is now at work, the grading is three-fourths done and track is being laid. The completion of this road will give a line of road from Cedar Rapids to St. Louis, on the west bank of the Mississippi. This line would run from Burlington to Keokuk over the Chicago, Burlington & Quincy Company's line, from Keokuk to West Quincy over the Mississippi Valley & Western road, and thence over the St. Louis, Hannibal & Keokuk road. It is rumored that the Chicago, Burlington & Quincy Company will run trains over this line.

Augusta & Hartwell.

It is now proposed to abandon the route originally surveyed for this road, which left the valley of the Savannah River at the mouth of Broad River and ran through Hart, Franklin and Habersham counties to Clayton, where it was to intersect the proposed Blue Ridge Railroad. This line would involve some exceedingly heavy and costly work in the mountains from the Currahee to Clayton. The line now proposed runs from Augusta up the valley of the Savannah River to its head at the junction of the Seneca and Tugaloo rivers, then crosses the Tugaloo and runs to Perryville in Oconee County, South Carolina, where the Richmond & Atlanta Air Line crosses the Blue Ridge road, about 125 miles from Augusta. It is claimed that this is a direct line and can be constructed for a much smaller sum than the line originally proposed.

Q Missouri & Pacific.

The track was completed between Edina and Kirksville, Mo., on the 27th of August, parties having been at work in both directions. The company now has 72 miles of line, from West Quincy west by north to Kirksville, Mo., where a connection is made with the St. Louis, Kansas City & Northern. The new section, from Edina to Kirksville, is 21 miles long.

Red Wing & Hudson.

A delegation from River Falls and Hudson have met the officers of the Milwaukee & St. Paul Company with reference to building a road between these two towns. The company will have a survey made at once.

Jefferson City, Lebanon & Southwestern.

A committee representing this company was to meet the directors of the Osage Valley & Southern Kansas Railroad Company at Tipton, August 28, to arrange measures for the construction of the road from Versailles, Morgan County, southwest to Warsaw, Benton County. It is desired to have the Osage Valley road, some work upon which has been done, constructed as a continuation of the Jefferson City road.

Par s & Decatur.

Mr N. B. Gruelle, Chief Engineer of the road, informs the Decatur *Magnet* that a good line can be run from the present erminus near Lovington, Ill., *via* Mt. Zion, intersecting the Illinois Central at Wheatland, about five miles south of Decatur, but an independent line to Decatur will require some very heavy work.

Terre Haute & Southwestern.

The contract for the construction of this road from Terre Haute to Robinson, Ill., a distance of 40 miles, has been let to Darius C. Jackson, of New York. The road is intended to connect Terre Haute with the Chester & Tamaroa Railroad in Illinois, and, by a line yet to be constructed, with the Iron Mountain in Missouri.

Peach Bottom.

Work on this road, east of the Susquehanna, was begun between Oxford and Hopewell, Pa., August 28.

Fayetteville & Florence.

It is reported that this road, from Fayetteville, N. C., northeast to Florence, S. C., about 90 miles, is to be built.

Gulf, West Texas & Pacific.

The contract for the construction of the iron bridge across the Guadalupe at Cuero has been let to Mr. Gustave Schleicher, who is one of the contractors for the building of the road from Victoria to Cuero.

Chicago, Dubuque & Minnesota.

This road is now running to Brownsville, Minnesota, and the track is laid a mile and a half north of that point, and within eight miles of La Crescent, making the line 109 miles long. The construction force has been withdrawn from this point and transferred to the Turkey Valley line, a branch of this road in Iowa. On this line the iron is laid to Elkport, about 14 miles from the junction, and work is progressing rapidly.

The people of Howard County, Iowa, desiring to build a line to connect with this road, the company has agreed to iron and equip the branch, as soon as the grading is completed from Cresco southward to the junction with the Iowa Pacific, some eight miles west of Fayette, a distance of about 25 miles.

Ripley Narrow Gauge.

This road has been completed from Ripley, Miss., north about 25 miles to Middleton, Tenn., on the Memphis & Charleston road, 69 miles west to Memphis. The stations between Middleton and Ripley are: Gatlin's, Moore's, Hopkins', Buchanan's and Luker's.

Ashtabula, Youngstown & Pittsburgh.

The track has been laid as far as New Lyme, O., about 20 miles south of Ashtabula.

Niles & Canfield.

This company filed its certificate of incorporation with the Secretary of State of Ohio, August 26. The road is to extend from Niles, in Trumbull County, south to Canfield, in Mahoning County, a distance of about 13 miles. This is alongside of the Niles & New Lisbon road. The capital stock is to be $100,000, and the corporators are Jas. Ward, John Morris, David Harris, Josiah Robbins, Jr., and Thos Carter.

Mineral Range & L'Anse Bay.

The route of the road has finally been decided on, and work has been commenced on the first section of six miles from Hancock, Mich. This section is not let to contractors, but is built directly by the company.

Columbus & Ferrara.

The people of Columbus, Ohio, voted August 31, by a large majority, to issue $200,000 in bonds, for the construction of this railroad and the Scioto Valley Railroad.

Ridgefield & Portchester.

Work on this road is to be resumed, sufficient stock having been taken to insure its completion. The road is to extend from Portchester, N. Y., in a northeasterly direction to Ridgefield, Conn., about 22 miles.

Connecticut Western.

This company have decided to build the branch from Collinsville to New Britain at once. This branch will be about 15 miles long and the estimated cost is $250,000. The contracts are to be let at once.

Boston, Barre & Gardner.

Work has begun on the extension of this road from Gardner to Winchendon, about seven miles.

Old Colony.

The Shawmut Branch in Dorchester is nearly completed. The line, which is a short loop line of about two miles, diverges from the main track a little north of the present Harrison Square Station, and connects with the existing track of the Dorchester & Milton Branch. The present Dorchester & Milton track, which joins the main road at Neponset, will be used to some extent, but most of the trains to and from Mattapan, the terminus of the branch, will be run over the new track.

Frederick & Pennsylvania Line.

The last of the iron bridges on the line of this road, that over the Monocacy, was completed August 31. These bridges were built by the Patapsco Bridge and Iron Works, of Baltimore.

Chester & Iron Mountain.

The contract for clearing and grading on this road has been let to Messrs. Hanford, Becker & McTie, and the work is to begin shortly.

Ohio Falls Car Company.

The new and very extensive buildings, which replace those destroyed by fire four months ago, are nearly completed, and in a few weeks the works will be running at their full capacity.

Nevada & Yuba.

The San Francisco *Bulletin* says that the project for a narrow-gauge railroad from the towns of Nevada and Grass Valley, in Nevada County, Cal., to Auburn on the Central Pacific road, has been changed in favor of a route from Nevada and Grass Valley to Marysville in Yuba County. This route will secure more direct connections with the railroads to Vallejo, Sacramento, &c., and the road will reach navigable water at Marysville. The sum of $45,000 has already been subscribed in Nevada alone, and it is asserted that as soon as $150,000 are raised, a sufficient sum to complete the road can be obtained. The road would be about 40 miles long.

Northern Pacific.

The St. Paul *Press* of August 29 gives the following particulars of the progress of the work:

"Grading on the main line, in the Dakota Division, is progressing very rapidly, the level condition of the country necessitating no great amount of heavy work. The grade will all be completed to the Missouri River by October 1. Messrs. Blair & James are pushing the track laying with great energy and rapidity. They are putting the iron down at the rate of two and a quarter miles per day, and confidently expect that the iron will be all laid to the Missouri by November 1. A new town has been laid out in Dakota, at the point where the road crosses the Missouri, on the east margin of the river. It is called Edwinton, out of compliment to Edwin M. Johnson, first Chief Engineer.

"Regular trains run over the line, day and night, carrying the immense amount of material necessary to supply the large forces of men. At least 100 car loads per day are sent to the front, with iron and similar material, to say nothing about the food and supply trains for the army of workmen. Besides the construction business, the company has also a large amount of general freighting to do, and about 100 tons per week for the Hudson Bay Company, all of which makes a lively condition of things.

"The Yellow Stone surveying expedition was last heard of in the vicinity of Heart River. The party was making good progress, and was in a good bodily condition."

Wellington, Grey & Bruce.

The company has just sold $5,000,000 of its first mortgage bonds in England. This disposes of the remaining portion of the issue for main line from Guelph to the Southampton terminus on Lake Huron. The Kincardine Extension is being pushed forward rapidly, and it is expected that the 40 miles from Palmerston to Wingham will be opened for traffic this fall.

Houston & Great Northern.

Mr. John S. Kennedy, who is Acting President, during the absence of Mr. Barnes, makes the following statement of the condition of the work:

"In the absence of Mr. Barnes, President of the company, who has gone to Europe for a few weeks, I avail myself of this period marking the termination of the second year of the existence of the charter of the International Railroad Company, to furnish you precise information respecting the present condition and prospective progress of our work.

"I shall speak of our work as embracing not only the construction of the International Railroad but of the Houston & Great Northern as well.

"Although begun originally under separate charters and the work of construction prosecuted under distinct organizations, the recent agreement of consolidation entered into by the stockholders of both companies, has cast their receipts and expenditures into joint account, and made their interests one and indivisible.

"They are managed by a joint board composed of the directors of both companies.

"At this date the number of miles of road completed and in operation is as follows:

Of the International	110 miles
Of the Houston & Great Northern	160 "
Total completed	270 "
In process of construction:	
By the International	100 "
By the Houston & Great Northern	66 "
Total in progress	166 "
Total finished and in progress	436 "

"Of the International's track in progress, 70 miles are four fifths complete and will be in operation January 1, 1873, carrying our track to Longview, the point of junction with the Texas & Pacific Railroad.

"Of the Houston & Great Northern in progress the entire 66 miles are three-fourths finished, and will be in operation December 1, 1872, intersecting the International Railroad at Palestine, and carrying the track to Tyler, Smith County.

Number of miles of the joint roads now completed	270
Number of miles of the joint roads to be done January 1, 1873	136
Total number of miles expected to be in operation Jan. 1, 1873	406
Now in progress and to be completed in 1873	30

"The amount of cash means actually expended in the work of construction and equipment by the joint companies to date, is in round figures $10,000,000.

"This includes the cost of equipment, *i. e.*, rolling stock for the entire mileage of completed road and that expected to be completed by the 1st of January next.

"This sum has been contributed by subscription to stock and bonds, nearly the entire amount of the latter having been taken by the stockholders of the two companies, and insures the stability and good faith of the enterprise, completely and absolutely guaranteeing the continuation of the work so well begun.

"The portion of our line most replete with engineering difficulties will have been overcome when the work now in progress is completed."

St. Louis Bridge.

A telegram from St. Louis, dated August 30, says:

"The first skewback of the Illinois & St. Louis bridge was appropriately set to-day, and preparations made to place the others in place. Each skewback has one section of the arch tube attached. They are of forged iron, and, with the section of steel tubing, weigh about six tons each. The entire masonry of the bridge will be finished by the 1st of October. A considerable portion of the superstructure has arrived, and a large amount is in transit."

Canada Pacific.

The *Engineer* says Mr. Fleming, Chief Engineer of the Canadian Pacific Railway, has started for British Columbia. He will proceed from Fort Garry to the Rocky Mountains along the proposed route of the great line.

Houston & Texas Central.

Governor Davis, of Texas, has ordered the Attorney-General of that State to postpone until December 1 the commencement of the suit which is to be brought against the company for the forfeiture of its charter, on account of its exacting gold in payment of fares and freights, when by law it was bound to accept legal tender notes at par. This postponement is made to give the company time to comply with the law and rearrange its tariff and contracts in accordance therewith.

New Orleans, Mobile & Texas.

The Galveston *News*, of August 27, reports that the difficulty heretofore existing between this company and Mr. Morgan has been arranged, and that work on the road will now go forward as rapidly as possible.

Cincinnati & Great Northern.

The annual meeting of the stockholders of this company for the election of directors will be held at the office of the company on Third street, Cincinnati, September 30, at 11 a.m.

Utah, Idaho & Montana.

The work on this road, it is reported, is being pushed rapidly ahead, and it is expected that 50 miles will be completed this year. At the same time the Utah Northern (narrow-gauge) is being pushed ahead rapidly, and has a considerable section in operation. Gen. P. E. Connor is President of the Utah, Idaho & Montana Company.

Baltimore & Ellicott's Mills.

A preliminary survey has been made of this line. The Canton Company are the principal corporators of the company, and it is said that the work will be put through at once.

Pittsburgh, Washington & Baltimore.

The *United States Railroad and Mining Register* says:

"The officers of the Pittsburgh, Washington & Baltimore Company emphatically deny the report that the Pennsylvania Central have bought or leased the Fayette Branch, extending from Connellsville to Union, built by subscriptions along its line, and running along the outcrop of the great Connellsville ("Pittsburgh") coal bed. It was leased by the "Connellsville Railroad Company," whose fulfillment of the contract is said by the owners not to be quite satisfactory. Coke ovens are numerous along the line, and its revenue is large and growing. This road becomes an important link in a north-and-south line, the northern division of which is now building from Greensburg (on the Pennsylvania Railroad) to the Yough River near

Connellsville. Greensburg will be a great coke depot. The Pittsburgh, Washington & Baltimore Company feel the importance of this branch to their own line, and promise strict adherence to the terms of the lease contract in future."

Philadelphia & Reading.

The new arrangement by which this company is to conduct the express business over its different lines went into operation September 1. The company advertises that it will make direct connections with the Delaware, Lackawanna & Western Express for New York, the Eastern States, Canada, etc. Mr. Edward E. Park, formerly of the Central Express Company, has charge of the express branch of the company's business.

South Mountain.

A meeting of the promoters of this proposed road was held at Jonestown, Pa., August 15. The assurance was given that if the sum of $10,000 per mile can be raised along the line of the road, it will be constructed. The length of the line from Harrisburg to Hamburg is 54 miles. The following officers were elected: President, W. H. Bell, New York city; Vice-President, David M. Bank, East Hanover; Treasurer, Jeremiah Heilman, Jonestown; Secretary, Jacob G. Heilman, Jonestown.

New Maryland Railroads.

A company has deposited articles of incorporation in the record office, which proposes to build a road from a point on the Baltimore & Ohio Railroad between Hyattsville and the Highlands, near to the head of Oxen Run, and down the run to the Potomac, thence by bridge to Alexandria. Another road is to run from a point near the dividing line of Spaulding's and Bladensburg districts, on the Point Lookout Railroad, thence to Bemming's Bridge, thence to Boundary and Fifteenth street east, thence to the corner of I and Third streets northwest, in the city of Washington.

Logansport, Crawfordsville & Southwestern.

An election held at Logansport, Ind., August 24, to determine whether an appropriation of $40,233, cash, should be made to this company and the Detroit, Eel River & Illinois, resulted in the defeat of the appropriation.

St. Louis & Southeastern.

The stockholders of this company, at a meeting in St. Louis, August 26, unanimously ratified the articles of consolidation recently entered into by that company with the Evansville, Henderson & Nashville and the Edgefield & Kentucky companies.

Pennsylvania.

The prize for having the best mile of track has been awarded by the officers of the company to Samuel Dobson, Supervisor of the Pittsburgh Division.

Bound Brook & Easton.

This new road, which is to be the western end of the Lehigh Valley's line across New Jersey, will run almost parallel with the New Jersey Central for some ten miles from Easton. A force of 120 men is at work on the Musconetcong Tunnel on both sides of the mountain, and the work is carried on day and night. The tunnel will be about seven-eighths of a mile long. The work is being pushed all along the line of the road to Bound Brook.

Western Maryland.

Work on the Williamsport extension has been begun at Hagerstown.

Cumberland Valley.

The bridge across the Potomac at Williamsport, the completion of which was recorded last week, is a deck bridge, covered and weather-boarded and rests upon two abutments and six piers. It is 70 feet above the river and 1,017 feet long. Between the West Virginia end of the bridge and Martinsburg, 11 miles, the Martinsburg & Potomac Company have nearly completed the grading and will have the rails down early in October.

Philadelphia, Westchester & Downington.

The contract for building this road from Philadelphia to Westchester has been let to James M. Sellers, of Philadelphia. Work is to begin at once between Newton Square and Philadelphia, and laborers will be put on between Newton Square and Westchester as soon as $20,000 more is subscribed.

Bedford & Bridgeport.

The extension between Bridgeport and Cumberland will be completed about the middle of September, with the exception of the bridge over Will's Creek. This bridge will be about 400 feet in length. A short time since the middle pier was washed out by a freshet. Work has been resumed on the masonry, and it is expected that the road will be completed by December 1. Meanwhile trains are run over the Pittsburgh & Connellsville road from Bridgeport to Corrigansville.

Wilmington & Western.

Track is laid on this road to Cuba Hill, 10½ miles from Wilmington. At Cuba Hill is a deep rock-cutting, through solid blue granite. This is now nearly finished, and upon its completion the track will be laid to Landenburg, the terminus of the road. An engine-house has been built in Wilmington, and considerable rolling stock is purchased.

Cairo & St. Louis.

Tracklaying on this road was to be begun at East St. Louis, September 1. Sufficient iron to lay 20 miles of track is now on the ground.

Memphis, Carthage & Northwestern.

A final survey is now being made from Columbus, Kansas, which is on the Missouri River, Fort Scott & Gulf road, 50 miles south of Fort Scott, through the counties of Cherokee, Labette and Neosho to Thayer, a distance of about 42 miles in a northwesterly direction. Thayer is on the Leavenworth, Lawrence & Galveston road, 109 miles south of Lawrence.

Wheeling & Lake Erie.

The township of Cadiz, Ohio, voted, August 30, to raise $75,000 in aid of this road.

Virginia & Truckee.

The Carson (Nev.) *Register* says that the tracklayers on the Reno Division were in sight of town and south of the tunnel August 20, and it was expected that cars would run into Carson by August 24.

Kansas City, Wyandotte & Northwestern.

The people of Kansas City voted, August 20, to subscribe $150,000 toward the construction of this road, which is to extend from Kansas City to Lincoln, Neb. Work is to be begun upon the road at once.

Griffin, Monticello & Madison.

The surveys for this road are completed to Athens, Ga., and a very favorable route has been found. It is reported that the company has secured promises of aid from strong parties and that the work of construction will be pushed forward at once.

Northeastern of Georgia.

The Athens (Ga.) *Watchman* says that the contract for grading the road from Athens to the junction with the Air Line road has been awarded to Messrs. Grant, Alexander & Co., who have also subscribed liberally to the stock of the company. As soon as the first section of 20 miles is completed, State aid to the amount of $15,000 per mile can be secured.

Atchison & Nebraska.

This road was completed to Lincoln, Neb., August 24, and regular trains commenced running to Lincoln August 26. The distance from Atchison to Lincoln is 147 miles, and from Saltillo, the late terminus, to Lincoln is nine miles. This completes a short railroad route from St. Louis to Fort Kearney.

Peoria & Springfield.

The progress of this road has been somewhat delayed by injunction suits and other legal impediments thrown in the way by the Peoria, Pekin & Jacksonville Company; but all differences have been adjusted and work is now expected to proceed rapidly. The bridge over the Illinois River at Peoria will be finished by October 1, and the track from Peoria to Pekin is to be ready by the same time, so that trains can then run between those two places. The bridge at Peoria is 1,050 feet long, resting on seven piers of Joliet stone, with an iron draw 300 feet in length. The contract for grading from Pekin to Mason City, 28 miles, is to be let by September 10, and it is intended to have iron laid to Mason City by January next. The grading from Mason City to Springfield will be begun next spring, and it is hoped that the whole road will be complete by July 1, 1873.

Marquette, Houghton & Ontonagon.

This company, formed by the consolidation of the Houghton & Ontonagon and the Marquette & Ontonagon companies, has completed its organization. The Marquette *Mining Journal* says that the company has secured the co-operation of a number of Eastern capitalists, among whom are Messrs. J. J. Astor and Samuel Sloan, of New York, Nathaniel Thayer and Quincy A. Shaw, of Boston. Work is to be pushed forward and the whole line from L'Anse Bay to Marquette will probably be in operation by the close of the year.

North Pacific Coast.

This company intends to build a road from Saucelito, on San Francisco Bay, north through Marin and Sonoma counties, reaching the coast north of Russian River and thence following the coast through Mendocino County to the region of Humboldt Bay. Ground has been broken in Marin County, and the company reports that it has purchased a quantity of iron. It has a subsidy of $160,000 from Marin County, and is asking for $1,000,000 from San Francisco.

Juniata & State Line.

The Trenton (N. J.) *True American* says that Mr. Robert S. Renselaer, Chief Engineer of this company and of the Baltimore & State Line Railroad Company of Maryland, is pushing the surveys forward rapidly. Two parties, one working south from Philadelphia and one north from Baltimore, are now making the final location, and expect to meet in September a few miles above Port Deposit, on the Susquehanna. The road being already located from Frankford to a point near Attleboro, they will then proceed to locate the line from Attleboro to the Delaware River at or near Trenton. The company purposes to build a double-track, narrow-gauge road.

Lee & New Haven.

Work on this road, under the contract with H. M. Phelps & Co., is to begin September 1, and be completed by January 1, 1874. Under the new arrangement, the branch of the New Haven & Northampton road, which now terminates at New Hartford, is to be extended through Pleasant Valley and Riverton to the State line, meeting the Lee & New Haven road at Colebrook.

Connecticut Central.

Meetings are being held to favor the construction of this road from Springfield to Hartford, or Portland, with a branch to Rockville.

Pennsylvania & Delaware.

It is reported that this road, which is to extend from Pomeroy, on the Pennsylvania Railroad, 42 miles west of Philadelphia, to Delaware City, is under the control of the Pennsylvania Railroad Company, and that that company intends to make Delaware City the main point for shipping coal. The Wilmington *Commercial* says that the company has purchased the old coal wharf and will commence to enlarge it at once. The road is to be completed in November. The harbor of Delaware City is never closed by ice.

Lake Shore & Tuscarawas Valley.

This line from Elyria to Black River, about 12 miles, was opened August 22. Cars will run from Elyria to the terminus on Lake Erie, without steam, though the grades are nowhere very heavy, with the exception of a short distance near the harbor. Regular trains will be put on as soon as the ballasting is completed.

Marietta & Pittsburgh.

Cars are now running to Point Pleasant and the work of tracklaying is progressing rapidly. The company expect to have their line completed to Cambridge by the middle of September. Cambridge is on the Central Ohio Division of the Baltimore & Ohio road, 52 miles west of Bellaire.

Texas & Pacific.

A San Francisco dispatch of August 29 says that an arrangement has been made by which this company succeeds to all the rights and property of the San Diego & Gila Railroad Company, receives the right of way through San Diego, city and county, 100 acres of tide lands on San Diego Bay, and a terminal depot lot covering a space of 600 by 1,500 feet. The company has agreed to put three parties of engineers into the field at once to locate the route, and to commence the work of construction from San Diego eastward as soon as the line is finally located. Los Angeles and San Bernandino counties offer to vote subsidies to aid the enterprise.

Baltimore & Ohio.

The new line from Point of Rocks to Washington is now entirely graded, and construction trains run 22 miles from Washington and seven miles from the other end. The connection between the two ends will be made as soon as the bridge work is finished. Orders have been issued to have the road ballasted and ready to run from Washington to Rockville, about 13 miles, by the middle of September. The whole line is about 42 miles long.

Junction City & Fort Kearney.

Grading parties are at work along the line from Wakefield to Clay Centre, and contractors are delivering ties at various points on the line.

New York & Oswego Midland.

The Port Jervis *Gazette* says that Middletown can secure the location of the company's repair shops by giving the company $100,000.

Columbus & Toledo.

The town of Delaware, Ohio, has voted $100,000 for this road, by a large majority.

Pennsylvania Petroleum.

A Titusville (Pa.) dispatch, of August 29, says: "It is understood that the contract for the purchase of the Shenango & Alleghany Railroad by the Pennsylvania Petroleum Railroad was executed yesterday. It is the intention of the latter company to extend the road to Parker's landing and adjacent oil fields at once. A corps of engineers are now on the ground. The Petroleum road is being rapidly pushed forward and it is expected that trains will connect Pithole with the Atlantic & Great Western Railway in October."

Oil Creek & Alleghany River.

A dispatch from Titusville, Pa., dated August 29, says that the Alleghany Valley Railroad Company have secured a controlling interest in this road and will probably take possession about September 1. Among the improvements contemplated by the Alleghany Valley managers is a through express from Pittsburgh to Buffalo. It has been previously reported that the Atlantic & Great Western Company was negotiating for the possession of the road.

Newark, Delaware & Northwestern.

Delaware, Ohio, has voted, by a large majority, to raise $100,000 by taxation, for the building of this road.

Northern Pacific Surveys.

An engineer connected with one of the Montana parties writes to us as follows of the progress of surveys on that division, where there are many difficulties to encounter, and where thorough explorations will be of great value:

"Mr T. P. Roberts, engineer in charge of the first party, assisted by Mr. L. H. Barker, having left Sioux City, Iowa, April 27, has made a reconnoissance of the Missouri from that point to Fort Benton, Montana, a distance of 2,000 miles, in 36 working days. His report of that work contains some very interesting and valuable information, both to a general reader and an engineer, and it is hoped that those in whose power it is will not fail to publish it in the shape of a book, thus enabling the community at large to be benefited by it. Since then he has explored the upper Missouri from the Three Fork head-waters of that river, down to Fort Benton, a distance of 250 miles, a portion of the river hitherto considered as unnavigable. Mr. Roberts has made a thorough examination of that portion, and is perfectly confident that with a little improvement, and a narrow-gauge railroad for about 20 miles around the Big Falls of Missouri (293 feet high in aggregate), it can be made both navigable and beneficial to the commerce of the far Northwest.* This news gave a new impulse to the enterprising men of Montana, and they are ready to do everything in their power to have this plan executed.

"Mr. Roberts leaves, with his party, in a few days for field operations again. He intends to make some lateral surveys to the lines surveyed already. Perhaps it would not be out of place to remark that it is supposed to be the intention of the engineer in chief, Col. W. Milnor Roberts, not to adopt any line until all possible and practicable routes in this difficult country are surveyed and examined. We can only admire this wise course adopted.

"Mr. M. T. Burgess, of the second party, assisted by M. A. A. Meyendorff, has completed his work in 60 working days, a distance of about 112 miles. Beginning at the mouth of Divide Creek, on Big Hole River, crossing the main range at the heads of north forks of Big Hole on the Atlantic, and of Salmon River on the Pacific slope, with a moderate grade, they descended to the Salmon River, effecting a connection with a line surveyed by Colonel W. W. DeLacy, who is still working his way down the Salmon River, slow but sure. Mr. Burgess and party are *en route* to Bozeman, whence they'll work toward the Yellow Stone River. Mr. James Bettner, assisted by Colonel L. Martin, with the Fourth Party, having commenced from a point on Missoula River a little below the city of the same name, is energetically pushing his work on and on, until he will meet a party tending toward them from the Pacific Division. He has made in less than three months a distance of over 200 miles. When last heard from he was at Pend d'Oreville Lake.

"The Yellow Stone party was organized and left Helena for that dangerous post about the middle of July. Col. J. E. Haydon, Assistant Engineer, has charge of the party. Mr. J. B. Dougherty is transitman, and Mr. Thomas Lefou, leveler. They are escorted by eight companies, composed of cavalry and infantry. Colonel Baker, the brave fighter of the redskins, has command of the expedition."

Dakota & Southern.

The bridge over the Big Sioux River was to be completed about September 1, and tracklaying was to be begun as soon as the bridge was completed. It is expected that the road will be finished to Elk Point about September 20. The line from Elk Point to Vermillion is now being located and grading will commence very soon.

Four engines have been purchased for the road, two of which are at Sioux City. The track-laying has been begun at Sioux City.

Northern Nebraska.

The Sioux City (Iowa) *Times* says that this company has secured means to construct the first 14 miles of its road and that it will commence work at once.

New York & Canada.

Work has been begun on the tunnel under the Fort grounds at Ticonderoga, and a large force is to be set to work shortly on the bridge over the outlet of Lake George. It is reported that the Delaware & Hudson Canal Company, which controls the New York & Canada Company, has decided to connect the two lakes by rail, and will let contracts for the work as soon as the New York & Canada road is in operation. This road will enable the company to run trains from New York and Saratoga to Lake George direct.

Alabama & Chattanooga.

The Chattanooga *Times* gives currency to a rumor that Governor Lindsay, of Alabama, has sold this road to responsible parties who will take possession and run trains at once. It is also rumored that the Southern Security Company has made amicable arrangements with Mr. Stanton and Governor Lindsay, and that Mr. Stanton will again secure possession of the road.

The lower House of the Georgia Legislature has passed a bill declaring that the indorsement of the State on the bonds of the company, for that portion of the road in the State of Georgia, is null and void. It is considered very probable that the Senate will concur in this action.

Danville, Brazil & Bloomington.

This company filed its articles of association with the Secretary of State of Indiana August 29. The western terminus will be on the State line near the crossing of the Bowling Green & Little Vermillion Railroad, in Vermilion County, and its eastern terminus at Bloomington, Monroe County. It passes through Vermillion, Parke, Clay, Owen and Monroe counties, *via* Carbondale and Bowling Green. The capital stock is $500,000, of which $50,000 is subscribed. The road is designed to connect at its western terminus with a road to run *via* Danville, Ill., in a northwesterly direction, to intersect the Illinois Central, or another road running into Chicago. The directors are: John C. Short, Abraham Sandusky, Andrew Gundy, Andrew Maxon, Augustus L. Webster, Milton A. McDonald and Robert A. Carahan. The general course of the road is northwest from Bloomington, and its length will be about 80 miles. It is claimed that this will be a short and direct line from the Indiana block coal fields to Chicago.

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* This has given rise to a plan which will enable the people of New York and Montana to become neighbors at once. The Northern Pacific Railroad will be completed to its crossing of the Missouri at Carlton this fall. From there it is hoped the Northern Pacific will make such temporary arrangements as to transport their passengers by steamboat to the very heart of Montana.